

1789

A
TREATISE
OF THE
CHOLICK;
CONTAINING
ANALYTICAL PROOFS
OF

Its many Causes, and Mechanical
Explanations of its several Symp-
toms and Accidents, according to
the newest and most rational Prin-
ciples: Together with its Cure at
large.

K

By *JOHN PURCELL*, M.D.

L O N D O N :

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To His GRACE
C H A R L E S
DUKE of Shrewsbury,

Lord Lieutenant-General, and General-Governour of Her Majesty's Kingdom of *Ireland*, Lord Chamberlain of Her Majesty's Household, Lord Lieutenant of the Counties of *Salop* and *Worcester*, One of the Lords of Her Majesty's most Honourable Privy-Council, and Knight of the most Noble Order of the *Garter*.

May it please Your GRACE,



H E Honour of so great a Prince's Patronage to this Treatise, will skreen the weak

A 2

Perfor-

The Dedication

Performance of its Author from the Censures of many; this I acknowledge as a Favour I stood in need of, tho' not to be compar'd to those extraordinary Obligations I have formerly receiv'd from Your Grace; which if I omit this Opportunity of Publishing to the World, 'tis because I am sensible that the inward Satisfaction the Wise take in doing Good, is less'n'd to them by popular Applause: Wherefore I shall only beg Leave to assure Your Grace that my Gratitude equals the highest You have met with, tho' You are Universally belov'd where-ever Your Great Name and Merits are known. The Mildness, Justice, and Prudence with which You govern the Kingdom of Ireland, have in a ve-
ry

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ry short time endear'd You to that Nation. The great Share You had in those wise Councils by which Her most gracious Majesty has redrest the long and insupportable Calamities of *Christendom*, has render'd You valuable to all *Europe*. The welcome Assurances of a joyful and long sought for Peace which you lately carry'd over to *France*, as Ambassador Extraordinary from our Conquering and Peace-giving Queen, will make the Name of *TALBOR* be beloved for as many Centuries in that Kingdom, as it was formerly a Terror to it. You have deservedly been the Favourite of many succeeding Princes, and long the Darling of this Realm, but particularly of this County of *Salop*,

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for it has ever imagin'd to it self,
that some Share in the Renown
due to the Glorious Atchievements
of Your Grace, and of Your Il-
lustrious Ancestors, redounded to
its Inhabitants, who in Gratitude
have never been wanting in their
Affection to Your Family, nor in
Respect and Civility to any that
have the Honour to be related to
it; and 'tis my particular Happiness
therein to experience every Day
more than other the beneficial In-
fluences of Your Grace's Favour;
For when by an Absence of
thirty Years [spent in the Uni-
versities, and in the Practice of
Physick in *London*,] I was look'd
upon almost as a Stranger in
this my Native Country, and
in that Town which your Grace
honours with Your Title, tho'

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I was born a free Burges of it; it was no sooner known that I had the Honour to be Related to, and Favoured by Your Grace, but I found that Prejudice over-balanc'd by many Civilities, and Obligations I had no other Pre-
tence to, conferr'd upon me by Persons of the best Quality, and many of all Degrees in this and the neighbouring Counties; for which, as I am sensible they are all owing to Your Grace's Interest, I think I cannot return my Acknowledgments in a more suitable manner, than in my Thanks to You for the Kindness they shew me.

THAT Your Grace may long live in perfect Health, always Esteem'd and Favour'd by Your Sovereign, Belov'd by Your Equals, Honoured and Respected

The Dedication.

by Your Inferiors, and Service-
able to Your Friends and Coun-
try in the highest Posts as You
now are, are the most sincere
and hearty Wishes of

Your GRACE's

Most Obliged,

Most Devoted

and Obedient

Humble Servant,

John Purcell.

THE
P R E F A C E.

THOUGH it be customary for Authors to prefix a Preface to what they publish, thereby to lead their Readers into the Scope and Drift of the Work, I thought this Book needed none, nor had I made any, but to obviate some few Objections.

The first is, that I have made this Distemper intricate, and depending upon a Multitude of different Causes, which appear'd easie before, and was deliver'd to us by the ingenious Willis, and many learned Men, as occasion'd by two or three different ones only: But I am humbly of Opinion that I have not multiply'd the Causes of the Cholick without necessity, nor even without sufficient Proofs and Authority for each particular one assign'd: And what induc'd me first to undertake this Work was, that I observ'd many different Causes of the Cholick

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Cholick instanced by various Authors, which were no where to be found together in any one. Tho' I am satisfy'd no Graduate Physician is ignorant of any of them, yet as the Multitude of Quacks and Pretenders to Physick, with which this Nation swarms, imagine that all Cholicks proceed from the same Cause, and therefore order the same Medicines for them all; I would endeavour, by representing the Difficulty and Intricacy of this Distemper, to inform them, (as far as such illiterate Persons are capable of being) how to prevent sometimes, if they won't totally refrain from killing; tho' no Perswasion can hinder them from continually endangering the Lives of others. I believe there is not one of the Faculty I have the Honour to be a Member of, who will think any Labour or Scrutiny too nice and great, where the Nature of the Distemper, and the Preservation of the Life of his Patient requires it; but if there should be one such amongst us, to him I flatter myself, this small Performance will prove the most acceptable, because he
will

The PREFACE.

will not only find here in a few Pages, what must have taken him up Months to have collected from different Authors, but also some manner of Cure ready at hand for each particular Cause.

Another Objection is, That I have brought several Distempers under this Head, as Inflammations of the Liver and Spleen, Imposthumes, Ulcers, Cancers, Tumours, Worms, &c. which are treated of by all other Authors as distinct Distempers from the Cholick. To which I reply, that all and each of these Causes, when seated in the Lower-belly, frequently occasion violent Pains therein, which from a simular Sense of Pain are often mistaken for the Cholick, under which Denomination they generally and not improperly pass, 'till their Symptoms arising to a height manifestly denote the true Causes; after which I would no longer stile them Cholicks, but range them under their proper Heads.

It is thirdly objected, That violent Pains in the Stomach, tho' they may be of the same Nature with those felt
in

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in the Guts during the Cholick, ought not to be term'd Cholical, because that Appellation is only proper to what are seated in the Colon. This is disputing upon Words only, for if Cholical is agreed to be deriv'd from $\chi\acute{o}\lambda\omicron\nu$, the Objection is granted, but if from $\chi\omicron\lambda\acute{\alpha}\zeta\epsilon\omega\varsigma$ to torture, it is as applicable to any other Part, as to the Guts; and are not Pains of the Gravel, term'd the Nephretick Cholick, tho' seated in the Kidneys or Ureters? It is farther alledg'd that as most Authors, particularly Riverius, (a) stile a Pain in the Stomach Dolor Ventriculi and not Colica, I ought not to vary from the usual and receiv'd Denominations of Diseases: To which I answer, that the same Riverius in another Place (b) calls it Colica Ventriculi himself; and that the Cholick in the Stomach, is grown the most usual Appellation of it amongst Physicians and others, especially in England.

I fully design'd to have added to this Treatise, the entire Processes of one or two

(a) Lazarus Riverius Praxeos Lib. IX. Cap. 1.

(b) Idem observat. XLIV.

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two Cures of the Cholick arising from each particular Cause, that has occurred in my Practice, which would have comprehended most, tho' not all herein assign'd; but three things hinder'd me from doing it; the first was, That some of my Patients were unwilling to have their Names appear in print on this Account; without which the truth of those Cures might have been questioned. The second, that several of those Cures were perform'd in Conjunction and Consultation with some of the most eminent Physicians in London, with whom (as we now live at a Distance) I found it would draw into too great a length of time to settle them all; and I was unwilling to publish what they had the greatest Share in, without doing them entire Justice. Which tho' I am at present debarr'd from in this way, nothing shall ever hinder me from acknowledging the Obligations I have to that most learned Body of Physicians, who have deservedly the Fame of being the Ablest in the World; from extolling their most excellent Practice of that Art, which they have brought to a Perfection

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fection not to be parallel'd in any other Place of the Universe; nor from returning due Thanks to them all, particular to the most skilful and most celebrated Doctor Ratcliff for the Instructions and Experience I have learnt from him and them, in the thirteen Years I had the Honour to practice amongst them. The third Reason for my not printing them, was, that I look'd upon it, as too much Presumption, to instance my own Cures, and impose them for Authority, without one or both of the above mention'd Evidences; but as I constantly keep exact Journals of all Cases that fall under my Care; of the Remedies I prescribe in them; and of the daily Alterations that happen to my Patients upon taking such Remedies; I can with little or no trouble digest them against a second Edition (if this Treatise should chance to meet with that Approbation, as to deserve it some Years hence) and may in that time have Opportunities to obtain the Revisal of them by what other Physicians were concern'd with me in any of those Cures.

It

The PREFACE.

It would be superfluous to make any Apologies now for my appearing in Print, this not being the first time. For writing on Philosophical Subjects in my Mother Tongue, I have Precedents from the famous Sir Isaac Newton and Mr. Lock, and if I could Instance no more, the Footsteps of the two most learned Men, that ever Great Britain educated, are what no one can blame me for treading in. The Receipts are in Latin, because it would prove inconvenient to put edg'd Tools into unskilful Hands. If this Work proves ever so little beneficial to Mankind, I shall thereby reap sufficient Fruits of my Labour, which shall always be employ'd, as to my Profession, in assisting every Body without Distinction to the utmost of my Skill and Power.

Shrewsbury,
Decemb. 20. 1713.

ERRA-

E R R A T A.

PAGE 2. l. Antepenult. read *vehementissimi* quique dolores, the' tis vehementissimos quosque in Lacuna's Epitome Galeni loco citato. p. 3. l. 15. Heat; r. Heat, p. 8. l. 6. th r. the. l. 7. ase r. as. p. 16. l. 26. a Humour r. an Humour. p. 17. l. 17. Distempers r. Distensions. p. 22. l. 12. externa r. external. p. 27. l. 27. urgere r. urgeri. p. 31. l. 12. Schirrons r. Schirrous Tumour. p. 32. for pag. 23. r. pag. 32. Ibid. l. ult. Matthiolo r. Matthioli. p. 34. l. 4. Remission r. Remission. p. 46. l. 27. fbrica r. fabrica. p. 76. l. ult. for (a.) r. (b.) p. 62. l. 7. del. did. l. 9. ears r. ears. p. 74. l. 26. Feaver. r. Fever. p. 95. l. 19. what r. that. l. 20. above it r. above what it. p. 96. l. 18. Sprits r. Spirits. p. 97. l. 6. proceeds r. proceed. p. 100. l. 26. del. receiv'd. p. 117. l. 11. dolore p. 27. per durant r. perdurant. p. 123. l. 27. Feaver r. Fever. l. 124. l. 1. a Physicians can, r. a Physicians only can. l. 13. ~~Ex~~ p. 128. l. 15. not only beneficial r. not only not beneficial. p. 130. for pag. 30. r. pag. 130. p. 144. l. 11. Waters not r. Waters hot.



A
TREATISE
OF THE
CHOLICK.

CHAP. I.

*Of the SYMPTOMS, ACCIDENTS,
and CAUSES of the CHOLICK.*



THE **CHOLICK** is a Distemper, that affects all Ages and Sexes; 'tis so frequent, that there is scarce any Person living who has not felt it; and the Meaning of the word **CHOLICK** is it self as intelligible to every body, as the best Explanation any Author has, or can give of it. But not to be deficient to usual Methods, the **CHOLICK** is properly described to be a

Its Description.

B

violent

The Symptoms of

violent Pain in the Lower-Belly ; for I cannot restrain it to the *Colon*, as most Authors do, tho' *Galen* himself found fault with the Antients for it (a), nor even to all the Guts, because (as I shall shew in the Sequel of this Treatise) its Seat is frequently in other Parts of the *Lower-Belly*, and that Description cannot be Adæquate, that does not include the whole. The word *Cholick* is generally thought to take its Derivation from *Colon*, the Name of one of the Guts, in which Gut alone the Ancients, and many of the Moderns, erroneously suppose this Distemper is always Seated; tho' *Julius Pollux* derives it from *Κολάζειν* to *Torture*, and is of Opinion that the *Greeks* therefore gave that Gut the Name of *Κώλον*, because 'tis subject to most Torturing Pains.

*Its proper
Symptoms.*

A Person seiz'd with the *Cholick*, is afflicted with a *violent Pain in his Belly*, which is sometimes extended to its whole Circumference ; now fix'd to a Point, and bores like an *Augre* ; at other times removes from place to place. One suffers such violent inward Contractions, that it feels to him, as if his Guts or Bowels were surrounded and pull'd together with Cords ;
in

(a) Satis mirari non possum quo pacto vehementissimos quosque dolores, quacunque in parte consistent, ab omnibus Colo tribuantur. *Galen*, lib. 6. de loc. affect. cap. 2.

in others, not only the Guts, but even the outward Muscles and Skins of the *Lower-Belly* will be *swell'd and stretch'd* to such a degree that they seem ready to burst. The *Belly* is generally *hard bound*, and but a *small quantity of Urine* evacuated. These are the common, distinguishing and proper Symptoms of the *Cholick*; besides which, there is frequently a *Sharp and Burning Heat in the Lower-Belly*.

There are several other Symptoms ^{Its acciden-} accidental to this Distemper; as, a *Fever*; ^{tal Symp-} *Thirst*; *sharp, sower, or bitter Taste*; *Rest-* ^{toms.} *lessness*, and *want of Sleep*; *Vomiting*, *Belching*; a *Heat*; *Sharpness* or *entire Suppression of the Urine*; the *Faundice*; *loss of Appetite*. A *beating in the Belly* like a *strong Pulse*; a *Cold Sensation* or *Chilness* in it; *Cold Sweats*; *Fainting Fits*; *Giddiness*; *Convulsions*. Sometimes the whole *Belly* will be *drawn inwards* so close to the *Backbone*, that there is scarce any *Appearance* of it left: In one, the *Navel* only, with a *small Circumference* adjoyning to it, shall be *drawn inwards*; in others the *Navel* *swell'd outwards*. Some void great *Quantities of Yellow or Greenish Matters by Stool*, without finding any *Ease and Relief* thereby: The *Excrements* of others are like *Cow Dung*, full of *Wind*, and so light as to swim upon the surface of the *Urine*. The *Cholick* frequently ends in a *Palsy*, or *Epilepsy*, sometimes in the *Gout*, *Dropsy*, *Rheumatism*,

The Symptoms of

matism, or *Extenuation* of the whole Body.

*Different
Sensations
of its Pain.*

It is to be remark'd, that the Pain felt in the *Cholick*, is often of a different Sensation, not only in divers, but also in the same Person at different Times; as now a *Burning*, then a *Gnawing Pain*; sometimes a *Bearing*, at other times a *Pressing*, or *Heavy Pain*; to some it seems as if their Bowels were *torn, twisted, stretch'd, or contracted together*; to others, that something like a *Cold Iron is run through their Guts*; and frequently a *sett'd Chilness*, or *intense Cold* affects all, or some one particular part of the Belly. These different Modifications of Pain, ought to be enquir'd after, because, join'd to other Symptoms, they give a Light into the true Cause of the Distemper: For though People commonly imagine, that all *Cholicks* proceed from one and the same Cause (and therefore generally take the same Remedies for them all) they arise from various ones, several of which require different Methods, and some quite opposite Remedies for their Cure. Wherefore Physicians ought always to Examine very carefully, from what particular Cause each Distinct Fit of the *Cholick* proceeds; the Knowledge of which will not only prove advantageous to the Patients, as a means to their more certain and speedy Cure; but nothing will give them that Opinion of a Physician, and

*Cholicks
arise from
sundry Causes.*

and make them have so great a Confidence in him, as their Experience of his constant hitting the real Distemper, and its true Cause; in which, as *Hippocrates* (a) judiciously observ'd, the greatest part of the Cure consists.

To establish the Causes of the Cholick *An Analytical Enquiry into the several Causes of the Cholick.*
Analytically, I must examine all that Part of Human Body in which this Disease is seated, and see what is contain'd therein capable, what incapable, of producing it. The Seat of the Cholick is in the Lower-Belly; in which, I find by its Dissection, outwardly expos'd to View the Cuticle or Scarf-Skin; under that a reticulous Continuation of little Bladders, fill'd with a Humour call'd *Corpus Mucosum*; next to it the Skin properly so call'd, which is the Organ of the Sense of Feeling, abounds with an Infinity of little Eminences, nam'd *Miliary Glands*, thro' which the *Insensible Perspiration*, and the *Sweat*, are filtrated; and with innumerable Protuberances of a little larger Size, term'd *Papilla Pyramidales*, implanted with bulbous Roots, like small Onions, out of which the Hairs sprout in Men and Beasts, and the Feathers in Birds. Immediately under this Skin is spread a Continuation of little Bladders like to a Honey-comb, fill'd with an

B 3

Oily

(a) *Hippocrates, Lib. de Arte.*

The Causes of

Oily Substance we call *Fat*; and under it, in some Parts of the Body, as in the Fore-head, Throat, and *Scrotum*, is another Membrane call'd *Panniculus Carnosus*; but there is none of it upon the Belly, though many Anatomists pretend it is spread all over the Body. Next to the *Fat* lies the *Common Membrane of the Muscles*, under it five pair of Muscles, beneath those the *Peritonaum*, which is a thin smooth Membrane that covers all the Bowels of the *Lower-Belly*; under that a Ligament call'd the *Navel-String*, and a Membrane nam'd the *Omentum* or *Caul*, compos'd of two thin Skins, divided into a multitude of little Mashcs, like to a fine Net, in which a great Quantity of that Oily Substance call'd *Fat* is contain'd; this Membrane is spread over all the Guts, fasten'd above and on both Sides, but floats loose at the bottom: Under it are plac'd the *Guts*, which fill the greatest part of the Cavity of the *Lower-Belly*, in whose upper and middle Part, the *Ventriculus* or *Stomach* is seated; with the *Liver* high up on its right Side, and the *Spleen* lower down on the left; underneath the *Stomach* there is situated a Gland about six Inches long, call'd the *Pancreas*, which adheres to the *Duodenum*, and lies upon the Back-Bone. The *Guts* being pul'd out, there appears a Membrane in the middle of them, call'd the *Mesentery*, which

is

is adherent to the Guts throughout their whole Length, and being of a circular Form, gathers them into a narrow Compass, and secures them from Twisting and Entangling with one another: Towards the middle of the *Mesentery* is a Gland call'd *Pancreas Aselli*, to which one sort of *Lacteal Vessels* ranging between the two Skins of the *Mesentery* carry the Chyle from the Guts, and another sort of them call'd *Secondary Lacteals* convey it thence to the *Chyle-Bag*: Next appear the two *Kidneys*, one on each Side, with each their *Ureter*, and each a lesser Gland adjoyning to it, call'd *Capsula Attribilarie*, or the *Renal Glands*: Then are seen the *Great Vein*, and the *Great Artery*, lying along upon the Back-bone; and under them are several *Muscles*; behind which is the *Back-bone*, perforated in its Length, and fill'd with the *Spinal Marrow*. There are other *Muscles* outward of the Back-bone, with the *Common Membrane of the Muscles*; the *Membrane of Fat*, the *Skin*, the *Corpus Mucosum*, and *Scarf-Skin*, all in the same Situation as describ'd in the Fore-part of the Belly; towards the bottom of the Belly in Man, are the *Bladder*, the *Spermatick Vessels*, the *Vesicula Seminales*, the *Vasa Deferentia*, and the *Prostate*; and in Woman, the *Bladder*, the *Womb*, the *Ovaria*, and all the Parts inserving to Generation. Besides all these, there is in the

The Causes of

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is

the CHOLICK.

7

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The Causes of

Lower-Belly a multitude of *Fibres, Nerves, Veins, Arteries, and Lympharick Vessels.*

The out-
ward Parts
of the Belly
not the seat
of the Cho-
lick.

Now the *Skins, Muscles,* and all the Parts mentioned to lye outward of the *Péritonaeum* before, and of the Back-bone behind, can none of them be the *Seat of it* Cholick, because a *Pain* in them is not (as we find by the daily Experience of Inflammations and Boils in them) referr'd to the inward Parts, but easily distinguish'd to lye outward, and to be of a different Sensation from the Pain of the Cholick.

Nor the
Caul.

The *Caul* being a Membrane fill'd with a Fat Oily Substance, whose Use, in part, is to hinder the Acrimonious Salts of the Blood and Humours from fretting and corroding the other Parts of the Body, is by consequence scarce ever liable itself to the Action and Impression of any sharp corrosive Humour, or to the Sense of Pain, especially of so violent a one as the Cholick. For as *Galen* (a) observes, that Pain which is not violent, is not to be call'd the Cholick. And Experience convinces us, that any part of the *Caul* may be gangreen'd and cut off, with little or no Pain to the Patient: For which Reasons I am induc'd to believe, that the *Caul* is never the Seat of the Cholick, unless when being *Schirrous* or *Swell'd* to an extraor-

(a) *Galenus, lib. 6. de loc. affect. cap. 2.*

traordinary Bulk, it presses upon the Guts, so as to stop the Passage of the Excrements. Nor are the Reasons given by *Dolaus* (a) of sufficient Weight to make me alter my Opinion. For tho' in an *Omental Rupture* the Caul may be inflam'd, and affected with violent Pains, they are then occasion'd by the *Rupture* (an establish'd Cause of the Cholick) which stretches the Fibres of the Caul to a preternatural Extention, which can never happen in its natural Situation. And the Instance of a Soldier, whose Caul was cut off, and he thereby subject to violent Pains of the Cholick, which *Galen* cur'd, by making him wear a Flannel Cloth upon his Belly, is of no Force; for it only confirms the Observations of many Anatomists, that those Persons are subject to Cholicks, in whom the Caul does not cover all the Guts. To omit many Observations of Authors, who by Dissections have found the Caul Ulcerated and Gangren'd, in Persons not troubled with the Cholick, I shall mention but this one out of *Blasius*: (b) He having open'd the Corps of a Young Man, who for many Weeks before his Death was afflicted with continual Vomitings, and an excessive Pain about the Pit of his Stomach,

(a) *Johannes Dolaus Encyclopadia, lib. 3. cap. 7.*

(b) *Blasius Observ. Anatom. 124.*

mach, found the *Caul* black, and almost *Gangren'd*, through its whole Extent, and the bottom of the Stomach inflam'd in that Part, where the *Caul* adher'd to it, and the violent Pain was felt. Whence I remark, that tho' the *Caul*, which reaches over almost all the Lower-Belly, was so much vitiated, yet the Pain was felt no where, but in the bottom of the Stomach, consequently not in the *Caul*, tho' affected in a far greater Degree than the Stomach, to a small Part of which only the Infection had spread it self.

The Kid-
neys, Ureter
and Blad-
der, none
of them its
Seat.

The *Kidneys* and *Ureters* are the Seats of the *Nephretick Cholick*, and the *Bladder* that of violent Pains occasion'd by the *Stone*; but as those are distinct Distempers from the *Cholick* I here treat of, none of them can be allow'd for the Seat or Cause thereof, tho' they frequently Impose upon Patients and Physicians for, and are very difficult to be distinguish'd from, the *Cholick* here in Question.

Nor the
Prostata,
Vasa De-
ferentia, or
Seminal
Vessels.

The *Prostata*, the *Vasa Deferentia*, the *Spermatick* and *Seminal Vessels*, are often swell'd, inflam'd or ulcerated in Venereal Distempers, and thereby affected with violent Pains, which however are of so very different a Sensation from the *Cholick*, that no one ever mistook them for it; consequently there is no reason to allow of any of them for its real Seat.

Tho'

Tho' it is possible, that the *Vertebra* of the *Back-bone* may by an *ill Conformation*, by a *Dislocation*, or *Excreffence*, prefs upon the inward Parts of the *Lower-Belly*, so as to occasion a violent Pain in them, or may from a *Caries* (a) supply Acrimonious Particles to Corrode the Parts; yet as the two latter Accidents are seldom met with, and scarce possible to be discover'd 'till after Death, and the two former were never known to occasion this sort of Pain, it is not reasonable to reckon the *Back-Bone* amongst the Causes or Seats of the Cholick, and much less the *Spinal Marrow* contain'd within its Cavity, because it is of the self-same Nature and Composition with all the other Nerves, which, as I shall endeavour to prove, are incapable of producing the Cholick.

Nor the
Back-bone
or Spinal
Marrow.

Piso indeed, and the Learned *Willis*, will have the Cholick to be a *Nervous Distemper*, and the latter seats it chiefly in the *Mesentery*. He pretends that some Recrements of Humours are carried down by the Nerves from the Brain, into the *Mesenterick* and other *Nervous Plexus's* of the *Lower-Belly*, where they are stopp'd, because being of a thick viscous Nature, they cannot enter into the *Lymphaducts*, nor be discharged through the small Ramifications

Willis's
Notion of a
Nervous
Cholick.

(a) *Bonetus Anat. pract.* p. 521. p. 1175.

mifications of the Vessels into the cavity of the Guts, but gathering in those *Plexus's* of the Nerves stagnate, swell, and cause a *Distention* or *Irritation* in them, either by their Quantity, or by a Fermentation produc'd in them, by a mixture of some fix'd Salt Humours from the Blood; and that this Distention or Irritation affects a multitude of Fibres with which the *Mesentery* abounds, and causes *Contractions* and *Painful Vellications* in them, from whence the Cholick arises; and that various Nervous Fibres proceeding from these *Plexus's* in the *Mesentery*, being distributed into the Guts, and almost every Part of the Lower-Belly, cause in them also *Contractions* and *Painful Vellications*. (a) This ingenious *Hypothesis* seems very plausible at the first View, and the great Reputation of its Inventor has not only left it uncontested by any to this Day, but has also establish'd it amongst all Authors and Physicians as undeniable, and even the Principal and most common Cause of the Cholick. But since I cannot allow of what this Learned Doctor advances, I hope the Reasons I shall offer to the contrary, will excuse my Disagreement with him; wherein I shall endeavour to make it appear, 1st, That his *Hypothesis* is not well grounded.

(a) *Willis de Anima Brutor*, Part 2. Cap. 15.

grounded. 2dly, That the Seat of the Cholick seldom or never lies in the *Mesentery*. 3dly, That the Notion of any *Nervous Cholick* is groundless, and an Imposition upon Patients and Physicians, to the great Detriment of the former, and Discredit of the latter.

This *Hypothesis* of *Willis* is ill-grounded; because establish'd upon Suppositions without any Proofs. The Recrements he supposes to be convey'd by the Nerves from the Brain, into the *Plexus's* of the *Mesentery*, must be the Animal Spirits, because the Nerves contain nothing else. If these Animal Spirits or Recrements can continue their Motion down the minute Channels of the little Nerves, into these *Plexus's*, Why should they stop there? Nothing but an Obstruction can occasion it, and it is notorious, that an Obstruction of a Nerve will occasion a Cessation or Diminution of Feeling in the Part, which is quite the Opposite to an Irritation or Pain in it. Or should it be admitted, that the Spirits may be stopt in a Nerve by other Causes than an Obstruction, there is no Reason why this should happen oftner in the *Mesenterick Plexus's* than elsewhere. For his Supposition of the Nerves inosculating with one another, and forming a new *Emporium, Basin, or Receptacle for the Spirits*, in these and other *Plexus's*, is but imaginary, and so far from Truth, that every little

Willis's
Hypothesis
refuted.

the Nerve continues its Course from the Brain down to the Part it belongs to, in a distinct separate Thread (not only thro' these *Plexus's*, which, put into Water, may be disentangled into Fibres visibly separate and distinct) but also thro' the *Spinal Marrow*, where they are so confus'd, they seem all together to make but one great *Nerve*. But admitting, as I said, that the Spirits should stop in these *Plexus's*, yet it would not from thence follow, that they must ferment and cause a Swelling; nor that a Fermentation or Swelling, if there were any, would occasion so violent a Pain as the Cholick: Neither doth he alledge any Reasons, that I find, to prove this Assertion; nor have I ever met with any Experiments amongst Anatomists which render it probable, but rather such as prove the contrary. For if you tye a Ligature upon the largest *Nerves*, and repeat the Experiment ever so often, you shall never perceive the least Swelling above the Ligature. And if he imagines that the Swelling and Distention of the *Nerves*, tho' imperceptible, may cause a Pain within them, and will have the Seat of Pain to lye (as he seems to think it does) within the Substance of the *Nerves*, in the Part it self; 'tis what neither he, nor any body else hath yet made appear by any probable Arguments; and if they had, would be easily refuted by this one Matter of Fact, that

that whenever there is an Obstruction in any *Nerve*, there is no Swelling, neither does any Pain follow from thence, but on the contrary a Cessation or Diminution of the Sense of Feeling in the Part; as it is manifest and undeniable in the *Palsie*. But, says he, perchance some fix'd Salt Humours separated from the Blood, may mix with the Spirits in the *Mesenterick Plexus's*, and cause an Effervescence in them, whence a violent Pain, or the Cholick will arise. 'Tis but perchance, without the least Proof; and I would willingly have any of his Abettors answer me, why the same Cause does not as frequently produce the same Effects in the *Plexus Cardiacus*, or *Pneumonicus*? But admitting the Mixture of these fix'd Salt Humours with the Spirits in the *Mesenterick Plexus's*, and that it shall happen no where else, what would follow? A Fermentation: The Consequence of which he pretends would be a Convulsion in that Part. And will a Convulsion occasion so violent a Pain as the Cholick is? No: *Willis* himself owns the contrary in another Place (a). And I have met with three Persons in my own Practice, one at *Barb*, another at *Marseilles* in *France*, and the third now living in *Sbrewsbury*, who

(a) *Licet dolor motus convulsivos. attamen hi istum per se saltem magnum & diu perseverantem minime producant.*
Willis de Animâ Brutor. Part. 2dâ. cap. 15.

who were and had been for several Years in continual Convulsions of all the external Parts of their Bodies, like to the *Chorea Sancti Viti*: I examin'd them with particular Care, and they all three assured me, they felt no great Pain, nor were any of them more subject to the Cholick than before, tho' 'tis probable, that all the inward Muscles (amongst which the Guts are to be reckon'd) were seiz'd with the same constant Convulsions as those of the outward Parts.

A Pleasure peculiar to all *Inventors*, made the most ingenious *Willis* not only less accurate here, but even deficient in his usual Force of Reasoning, in Anatomy, and in the proper Use of the Parts of Human Body; things in which he generally excell'd, and for which he is so deservedly renown'd throughout the whole learned World. One Reason he gives, why the Spirits or Recrements stop in the *Mesenterick Plexus's*, is, because they are so thick and viscid, they cannot be receiv'd into the *Lymphaducts*. But can any Physician or Philosopher suppose a Humour, thin and active enough to be convey'd from the Head down to the *Mesentery*, thro' the smallest invisible Channels imaginable; and yet too thick and viscid to be receiv'd into other Channels, considerably larger (and such are the *Lymphaducts*?) Or will any Anatomists allow, that the Use of the

Lym-

Lymphaducts in the *Mesentery* (appropriated to carry the Lymph into the *Pancreas Aselli*, there to be mixt with the Chyle) is to receive and carry off the Spirits from the Nerves? Or that the Nerves themselves throw off the Spirits like an Excrement into the Guts. Or lastly, that these Animal Spirits or Recrements which he supposes to be so thick and viscous, that they could not pass thro' the *Mesenterick Plexus's* (Basons, in his Opinion, capable of containing a large Quantity of Spirits lodg'd there, to be distributed on occasion into many Nerves) shall yet afterwards run thro' a vast number of much smaller Vessels, than they first came down thro' from the Head, and occasion violent Distempers and Irritations in them, when they had no such Effect in their Passage thro' those larger Nerves; for if they had, then a Pain as great as that of the Cholick would have been felt, from the Head, all along the *Spinal Marrow*.

Having given these Reasons why the Cholick cannot be produc'd after the manner *Willis* pretends; I am next to prove, that it is improbable the *Mesentery* should ever be the Seat of the Cholick. My Reasons are these; 1st. Because I my self have been present at four Dissections, wherein we found the *Mesentery* U'cerated or Gangren'd in Persons who had not been subject

The Mesentery not the Seat of the Cholick.

to the Cholick when Living; and Anatomists recount a multitude of the like Instances. 2dly, Because the *Mesenteries* of most *Dropfical* People are found corrupted; yet the Cholick is no usual Symptom or Companion of the *Dropfy*. 3dly, Because Swellings, Schirrous Tumours, Impostumes, Ulcers, and Stony Concretions in the *Mesentery* and *Meseraick Veins*, often occasion *Consumptions*, by stopping the free Course of the Chyle into the Blood, without any Symptoms of the Cholick, as many Authors attest from Observations, and Ocular Proofs in Dissections. (a) *Bon-tius* assures us, there is a Distemper very frequent in *India*, proceeding from Defects in the *Mesentery* (which in this Disease is always found Impostumated or Ulcer'd, and often intirely consum'd) by which the

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- (a) *Fabritius Hildanus, centur. 2. Observ. xlv.*
Sennertus practic. lib. 3. part. 5. Sect. 1. cap. 3. in fine.
Raymundus Fortis, Conf. 37. cent. 3.
Panarolus, Observ. xix.
Wharton Adenograph. cap. 11.
Christophorus Roisterus in Miscelan. curios. An. 1672. Observ. 307.
Schneiderus, lib. 3. de Cathar. c. 7. p. 247.
Gaspar Bauhinus, & Bonetus Anat. Practic. pag. 614. 615, 619.

Patients waste to Death, without the least Sense of Pain (b).

That the Notion of a *Nervous Cholick* is groundless, I shall endeavour to make out, chiefly by refuting the Arguments and Reasons it is grounded upon; and also by Mechanical, and, in my Opinion, more rational Explanations of the same Symptoms from other Causes; which latter part shall be only briefly touch'd in this Chapter, but more fully prov'd in the Sequel of this Treatise.

The Notion of a Nervous Cholick refuted.

The *Nervous Cholick* is, by the learnedst Assertors of that Opinion, said to be produc'd after the following Manner. They suppose that the Spirits flow with Impetuosity into the Nerves of the Lower-Belly, whereby they either swell and distend the Channels of those Nerves, or else mixing with other Humours occasion a Fermentation; by either of which Causes they pretend, that the sensible Fibres of the Parts in which this happens, will be vellicated and drawn into Contractions and Convulsions, whereby a Solution of Continuity, or Disruption of the Fibres, and consequently a violent Pain, or the

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(b) *Bontius Observat. xi.*

Cholick will be occasion'd (a). I have already shewn, pag. 13. that there are no sufficient Grounds to suppose the Spirits should stop more in the Plexus's of the Lower-Belly, than elsewhere, but rather the contrary, according to their Systems. 2dly, pag. 13. That if they should stop there, they would then occasion a Cessation or Diminution of Feeling in the Part, not a Pain in it. 3dly, pag. 14. That suppose they should cause Contractions and Convulsions in those Fibres, those Convulsions would not occasion Pain.

To strengthen which Reasons, I will add but two, out of many I could instance. The 1st, That in *Epilepsies*, several Parts of the Body, and consequently the Nerves in those Parts, suffer strong Convulsions; and yet the Patients are so far from suffering,

(a) *In Colico dolore materies fibras sensiles distrahens, & ab invicem divellens, proindeque in corrugationes dolorificas irritans, haud usque in Cerebro commorari, verum exinde per ductos Nervos versus Intestina descendens, alicubi in eorum vicinia juxta partes dolentes congeri, & subinde vel ob plenitudinem sponse turgescens, vel cum alio humore Effervesceens, morbi hujus Paroxysmos inferre videtur.* Tho. Willis, de Anim. Brutor, Part. 2. cap. 15.

Spasmodicam dicemus Colicam, eam, in qua spiritus Animales, à materia aliqua subtili ita afficiuntur, ut motum ordinarium intermittant, & ad Mesenterium aliasque partes sensiles membranaceas tumultuose influant, ibidemque vellendo fibras Nervorum, easdemque ladendo ac rumpendo dolorem non exiguum producant. DOLÆUS Encycloped. lib. 3. cap. 7.

ing violent Pains, that there is frequently an entire Abolition of the Sense of Feeling, and always a great Diminution of it, in so much that one may often pull, pinch, cut, or burn them, without their perceiving it. The 2^d, That when the Cause is translated from the Fibrous Parts upon the Nerves, as it happens when the Cholick ends in a *Palsy*, then all Sensation of Pain ceases, tho' the Cause affects the Nerves more at that time, than it did before. And yet this is the very Reason *Willis* (a) assigns, to prove that the Seat of this Pain is in the Nerves themselves.

One Reason they give for establishing the Seat of the Cholick in the Nerves, is, because they can suppose nothing besides the Spirits active enough to transfer the Pain in an instant from one place to another; and because it is hard to conceive how any Humour in the Guts can so affect the *Loins*, as to cause a Pain in them, which is a Symptom very frequent in the Cholick. To which I Answer, that for

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(a) *Dolores Colici ingravescentes non raro in Paralyssim terminantur, quod certe indicio manifesto est materiam morbificam non per Arterias, sed Nervos deferri, ejusque subiectum sive sedem non Intestinatorum Cavitates aut Tunicas sed Mesenterii plexus Nerveos esse. Willis de Anim. Brutor. cap. xv. pag. 206.*

The Causes of

want of a thorough Examination, they mistake the *Effect* for the *Cause*, or the *Second, Subservient* or *Instrumental Cause*, for the *Prime* and *Efficient* one. The Nerves, or rather the Spirits contain'd in them, are undeniably the Instruments by which Pains are transferr'd in an instant from one place to another, and by which the Effects of the Prime actuating Cause are perceiv'd; but are never the Efficient Causes themselves of any Pains, which are always occasion'd by something Externa or Adventitious to the Body; which tho' it may not be always seated in, nor even adjoyning to all those Parts that are affected with Pain, yet does vellicate and irritate the Nerves belonging to those distant Parts, as they happen to run through, or to have Communication with the Part in which the Principal Cause resides. So we find by daily Experience, that a Pain is felt in a *Part amputated*, and referr'd (for Instance) to a *Finger long since cut off*; which is occasion'd by an Irritation of the particular Nerve belonging to that Finger, made in a superior Part of the Hand or Arm. Which, to omit many others, is a sufficient Proof, that all *Sensations are made in the Brain, and not in the Part*. Another Argument they bring for this Assertion, is, that the Spirits often produce the like Disorders in Children when they *Breed*
their

their Teeth hard. But this is begging the Question; they allege no satisfactory Reasons to convince us that the Spirits occasion these Disorders in Children, but only Explicate it so themselves, because they know not how to account for it otherways, and would have their own Suppositions allow'd for Proofs in other Cases; whereas the true Cause of these frequent Convulsions in Children, is *the Acidity and Sowerness the Milk Contrasts* in the Stomach and Guts; whereby as it passes through the *Lacteals*, into the *Mesentery*, it irritates the *Nerval Plexus's*, and by those *Irritations* causes greater and more violent Influx's of the Spirits into all those Parts, whither the *Plexus's* send Ramifications of Nerves; where mixing with the Sulphureous Particles of the *Copula Explosiva* (which also partake of the same Sowerness, that the Chyle and the Blood has acquir'd) they cause violent Contractions and Convulsions. But the Pain then felt, does not, as *Willis* owns, arise from those Convulsions; but, as I said before, from a violent *Reflux and Undulation of the Spirits back to the Brain*, made by the same Cause, at the same time. And for a Proof that these Convulsions are caus'd in Children by the *Sowerness of the Milk*, I need only alledge, that they are cured by *Corral, Crab's Eyes*, and such like Remedies, which correct

that Sowerness. But for a farther Confirmation, and to shew the like in other Cases, Does it not often happen to many People an Hour or two after Meals, that they feel a *Chilness* or *little Shivering* throughout their Bodies? which proceeds from the *Coldness* of the Chyle irritating the *Nervul Plexus's*, as it passes through the *Mesentery*. And in *Aguas*, a greater *Shivering* or *Shaking* is diffus'd through all the Parts, which is known to arise from Sower Acid Indigestions, collected in the Cavities of the Guts, and carried at that time by the *Lacteals*, through the *Mesentery* into the Blood. This is arguing after Matter of Fact, the other upon Suppositions without Grounds; and if I can, as I hope to do in the sequel of this Treatise, explain every Symptom this way, at least as Mechanically as they do it otherways, I doubt not but it will be allow'd to be the better way of Reasoning upon Things unseen, and to carry a likelier Face of Truth.

I say then, 1st, That all *Sensations* and all *Pains* (that of the Cholick amongst the rest) are occasion'd by an *Irritation of the Nerves*, in or belonging to that Part where the Pain is felt; and that this *Irritation*, according to the degree and manner of its Action, causes a more or less violent *Reflux*,

Reflux, or Undulation of the Spirits from the Part affected, back to the Brain; in which (the Brain) the Impression is made, and the Pain felt, though referr'd to the Part. 2dly, That no *Impulse, Pressure, or Motion of the Spirits* down from the Brain into any Part, can ever cause a Sensation or Pain. My Reason (to omit many others too long to be inserted here, but which I may hereafter publish in another Treatise against the common receiv'd Notion of such a multitude of Nervous Distempers) is, because 'tis an undeniable Truth, that I can cause a troublesome Sensation or Pain at any time, and in any Part of the Body, by only striking or imparting a violent Motion to that Part: This Motion, according to all learn'd Physicians, must be carried by the Nerves up to the Brain, to produce the Sense of Pain (for how otherwise can there be a Remembrance of it, without a new Action or Stroke?) Therefore I certainly know, *that a violent Motion of the Spirits from any Part up to the Brain, will occasion the Sense of Pain;* and if I can account for all Pains whatsoever from this Cause, which is undeniable, why should I seek for other Causes less evident and satisfactory? Moreover, I never read, nor could yet imagine to my self, any one Instance or Proof whereby
the

the Motion of the Spirits down from the Brain into a Part, appear'd to occasion a Pain in it, but many to the contrary; as that in the continual *Beating of the Heart* (and the same may be said of the *Pia mater*, and *Guts*) to which the Spirits must constantly flow from the Brain, for its muscular Motion, not the least Pain, no not so much as a Perception of its *Beating* is felt, unless when it hits against the *Ribs* or some other Part, and then the Perception is occasion'd by a *Reflux*, or Undulation of the Spirits from that Part it strikes against up to the Brain: And that in *Running*, *violent Exercises*, and *Convulsions*, there is no Pain felt in the Muscles, tho' 'tis certain that the Spirits then flow down from the Brain into them in great quantities. I own that the Spirits which flow down from the Brain into the Muscles, are the Principal, though not the sole Cause of *Contractions* and *Convulsions*, but from neither of them arises any Pain; or if ever there does, 'tis only then when they are so violent as to occasion a *Reflux*, or *contrary Undulation* of the Spirits from the Part back to the Brain.

That the Cholick is sometimes Seated in the Peritonaeum. I come now to the true *Seats of the Cholick*; and first to the *Peritonaeum*, wherein I affirm the Cholick may be, and is often Seated, tho' *Willis* denies it for the following

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ing Reasons (a): Because it is a thin Membrane, has but few and slender Vessels, is incapable of containing any large quantity of Humours, and unable to contract or press down the Bowels: To which I answer, that the *Periosteum* is a much thinner Membrane, yet subject to most cruel Pains; and that the *Peritoneum* is both capable of containing, and often found full of Humours, as several Authors (b) testify from ocular Proofs. Heers (c) relates of one who died of Cholical Pains, violent round his Navel, that his *Peritoneum* contain'd above twelve Pound of putrid Matter: Bylerus (d) assures us, that he open'd a Woman who died also of a Cholick fix'd about her Navel, and found the *Peritoneum* corroded by a sharp bilious Humour, just in that Place, where her violent Pain lay. Scultetus (e) in the Dissection of a third, who was tortur'd with insufferable Pains about the Navel, found the *Peritoneum* swell'd to a prodigious

(a) *Mineram vero Colicam à Peritoneo rejicimus, quia membrana hec cum admodum tenuis, ac vasis paucioribus at tantum exilibus donata sit, nec magna humorum affluxionis capax, neque ipsa ut convellatur, viscera substrata comprimendo, aut contrahendo in dolores urgere posse videtur.* Willis de Anim Brutor. part. 2. cap. xv.

(b) *Paulus Barbette Anatom. pract. part. 4. cap. 2. Bogdanus observati. xi.*

(c) *Henricus ab Heers, Spadacrene observat. 25.*

(d) *Lucas Bylerus Dicad. 6. cas. 6.*

(e) *Joannes Scultetus in Trichiastis admiranda.*

digious degree, and in it twenty four Pound of putrid matter, and also a fleshy Substance four Inches long, and as many in breadth, cover'd with long Hairs: And other Authors give us Instances, where the Skins of the *Peritoneum* have been stretch'd into Bladders, containing even thirty Pound weight, or fifteen Quarts of Humours. (f) And certainly the *Peritoneum* is, from these Experiments, and its own Texture, as capable of being fill'd with Humours, irritated, corroded, inflam'd or ulcerated, as any other Membrane, consequently as subject to be the *Seat of the Cholick*.

In the Navel String.

The *Navel-string* has been found dilated and swell'd with Humours, (g) and it is (as are also the Muscles scituated along the Back-bone within the Belly) liable to most of the above-mention'd Alterations, therefore may from any of those Causes, be the *Seat of Cholical Pains*.

In the Renal Glands.

The *Capsula Atrabilaria*, or *Renal Glands*, may be the *Seat of the Cholick*, either from an *Inflammation of their outward Skins*, or from a *Cancerous Ulcer* within their Substance; of which latter, *Selimus the first, Emperor*

(f) *Volkerus Coiter observat. Anat. pag. 177. Zacutus lib. 2. observat. 52.*

(g) *Platerus lib. 3. prax. cap. de extuberantia. Riolanus Anabopograph. lib. 2. cap. x. Hildannus cens. 1. obs. 47.*

Emperor of the Turks, died in most miserable Torture, as *Leonclavius* and *Heurnius* relate (h).

The Womb may be the Seat of the Cholick, from an Irritation, Corrosion, Inflammation, Ulcer, Cancer, Swelling or Schirrous Tumour, in its proper Substance, its Ligaments, or any other part of it. 2dly, By any Excoriation or tearing of its Substance by a Midwife; by a Corruption of a Fetus in the Womb, by any Splinters of Bones remaining in it, after a Child has been torn out piece-meal. 3dly, By Tumours in the Ovaria, which sometimes have been found in it of the bigness of a Goose Egg, fill'd with Corruption and long Hairs, from whence proceeded intollerable Pains of the Cholick (i). 4thly, From the like Swellings in the *Tuba Fallopiana* (k). 5thly, By a Fætus lodg'd in either of the *Tuba Fallopiana*, of which *Riolanus* (l) relates an Example, where it occasion'd most cruel Pains of the Cholick for four Months together. 6thly, By Stones generated in the Womb, which *Hippocrates* (m), *Vallesius*, and others

*In the Womb
from many
Causes.*

(h) *Leonclav. in Annal. Turcicis. Heurnius histor. 25.*

(i) *Fabritius Hildanus. cent. 5. observ. 48.*

(k) *Antonius de Pozzis in miscellan. curios. observ. 42.*

(l) *Riolanus Anthopograph. lib. 2. cap. 35.*

(m) *Hippocrates lib. 5. de morb. popularib.*

ethers testify. Bartholinus (n) Instances one of six Pound weight found there. Sometimes the Neck of the Womb becomes Cartilaginous, or its Sides grow together, and hinder the Evacuation of the Menfes; where- by Platerus (o) found the Womb fill'd with Putrid matter, causing violent Pains of the Cholick. The whole Substance of the Womb has also been found Cartilagi- nous, and almost Bony in some (p) in o- thers perfectly turn'd to a Stone (r).

Proofs that the Cause of the Cho- lick is some- times seated in the Pan- creas.

The Pancreas is sometimes the Seat of the Cholick, occasion'd therein by Inflamma- tions, Impostumes or Ulcers, as Higmoreus and Heurnius prove from Anatomical Dissecti- ons (r): or by Schirrous Tumours in it, pressing upon the Guts or other adjacent Parts, as Riverius and others observ'd (s): or by Stony Concretions in its Channel, or proper Substance, attested by credible Authors (t). It may also swell to an extra- vagant Bulk, even as big as the Liver (u);

adhere

(n) Tho. Bartholinus cent. 4. histor. 64.

(o) Platerus Observat. lib. 1. pag. 260.

(p) Andreas Cnoeffellius in miscelan. curios. observ. 57.

(q) Quentzius in Anat. practic. Bonet. pag. 1136.

(r) Higmoreus disquis. Anat. lib. 1. part. 2. Heurnius commentar. in Aphor. 41. Sect. 6.

(s) Lazar. Riverius cent. 1. observ. xc. Riolanus An- thropogr. lib. 2. cap. 16.

(t) Heurnius comment. in Aphor. 41. sect. 6. Bonet. A- nat. practic. p. 939.

(u) Riolanus Anthropogr. lib. 2. cap. 16.

adhere to the Stomach, and weigh it down; or the Recrement it separates being mixt with the Gall in the Duodenum, if by any accident it chanches to be thrown up into the Stomach, will frequently cause troublesome Irritations in it, and the vomiting of Green Porraceous matter, of which last see more in Etmüller (x): All, or any of which Causes may occasion violent Pains of the Cholick.

The Spleen is often the Seat of the Cholick, Seated in from Inflammations, Obstructions, schirrous the Spleen, Impostumes, or Ulcers in it; from its swelling into a huge Bulk, sometimes so large as to fill the greatest part of the Cavity of the Lower-belly, and to press the Guts, and Stomach it self down to the bottom of the Belly (a): from the Relaxation or Rupture of its Ligaments, whereby it has fallen from its natural Situation down into the Loins; or being loose, has rowl'd up and down the Belly (b). From the hardening of its outward Skin into a Cartilage: (c) or

(x) Etmüllerus de valetud. Infant. Sect. 21. de Termin. & variis Alvi Excret. Infant.

(2) Gerardus Blasius observ. medic. 14. — Hipolitus Boschus Anat. lect. 2. pag. 14. Cabrollius observ. anat. 6. Georgius Garnerus. &c.

(b) Riolanus Encheir. lib. 2. cap. 26. Cabrollius observ. Anat. 6.

(c) Realdus Columbus lib. 15. Tulpus observ. medic. lib. 2.

or from *Tartareous Concretions*, *Gravel* and *Stones*, form'd, and remaining within its Substance (d).

Seated in the Liver. The *Liver* is very often the *Seat* of the *Cholick*, from its *Inflammations*, *Obstructions*, *Schirrous Tumours*, *Imposthumes*, or *Ulcers* (e). From its swelling into a great Bulk, sometimes so excessive, as to fill most part of the *Abdomen*, and to press the *Stomach* down to the bottom of the *Belly*, by which *Bartholinus* observ'd violent Pains of the *Cholick* (f): by it's *Adhering to the Diaphragm*, and weighing it down, from whence a violent Pain is often felt in the *Right Side* (g). By *Tartareous Concretions*, *Gravel*, and *Stones* of divers Figures, as round, square, angular; and of divers Colours, as green, black, white, yellow, speckled, form'd and remaining in its Substance, in its *Bladder*, in the *Porus Biliaris*, or in any of its *Ducts*,

(d) *Gualterus Charleton Diatrib. de Lithiasi cap. 4. sect. 2. Forestus de incertis Urinar. judiciis lib. 2. pag. 199. Nicholaus Fontanus Resp. pag. 90. Andreas Cnoeffellius miscellan. curios. An. 4. observ. 57. Turnehiserus in Exam. Urinar.*

(e) *Bartholinus cent. 4. observ. 18 & 25. Bonetus Anat. pract. pag. 969. Sanctorius in Art. parva Galeni part. 4. cap. 49.*

(f) *Tho. Bartholinus histor. lxxi. cent. 4.*

(g) *Tho. Bartholinus cent. 11. observ. 85. Ballonius lib. 1. annot. in consil. 43. Salmanus observ. Anat. pag. 59. Jac. Camenicinus in Epist. Matthiole.*

Ducts, which many Authors testify (a), and is an undeniable matter of Fact. *Platerus* affirms, that he cut a stony Concretion out of the Liver which perfectly resembled a branch of white Coral, hollow and fill'd with black Blood (b). *Rhodius* found the Gall-bladder turn'd into a Bone (c). And *Bartholinus* cites an Instance, where two great stony Tumours, one of sixteen, the other of twelve Pound weight, were found adherent to the Suspensatory Ligament of the Liver in the same Body (d). The Rupture also of the Gall-bladder by sharp pointed Stones or otherways, has been often found to occasion violent Cholicks (e). The same may happen from the Relaxation of its Sphincter, whence the Gall flowing continually, and in a large quantity into the Guts, will occasion Irritations, Erosions, and Inflammations in them.

D

I

(a) *Scaliger exercitat. 180. num. 3. Fabricius Hildanus cent. 4. observ. 44. Gerardus Blasius observ. medic. 19. pag. 16. Forestus lib. 19. observ. 14. Tho. Bartholinus cent. 4. histor. 64. Benivonus cap. 3. de Abditif. Cornelius Gemma lib. 12. cap. 116. Riverius, Platerus, Bauhinus, Matthiolus, Kertmannus, &c.*

(b) *Platerus observ. practice. lib. 2. cap. 12.*

(c) *Johannes Rhodius cent. 2. obs. 96. & cent. xi. obs. 3.*

(d) *Tho. Bartholinus cent. 4. histor. 64.*

(e) *Ferrandus de Nephresid. & Lithias. sect. 30. Bartholinus med. lib. 12. cap. 14.*

The Causes of

The Guts
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quent Seat
of the Cho-
lick; from
many Cau-
ses.

I am now come to the Guts, the most frequent Seat of the Cholick, which may be occasion'd therein by a multitude of different Causes. As 1st, by the Remission and Hardness of the Excrements (f). 2^{dly}, by Winds, which swell and distend the Guts, (g) sometimes with that Violence that they actually burst; as Benivenius affirms from an ocular Proof (h). 3^{dly}, by Crudities and Indigestions, sharp, sower, corrosive, &c. and under this Head are to be compris'd as Causes of the Cholick, all sower and sharp Wines, Syders, Beer, Liquors, Fruits, &c. 4^{thly}, by sharp, sower, or corrosive Humours discharged from the Blood upon the Guts; and under this Head the Humours of the Gout, Scurvy, Rhumatism, Venereal Distempers, &c. translated from other Parts upon them. 5^{thly}, by white, viscous Humours, commonly term'd P^urritons, Vitreous and Cold, impacted and adhering to the Sides of the Guts; by which Galen affirms that he himself suffer'd violent Pains of the Cholick, and was cured by a Clyster that brought away a great quantity of

Cold

(f) Laxarus Roderius prax. medic. lib. x. cap. 1. Parvus lib. 16. cap. 38. & 65.

(g) Willis pharmaceutices rationalis sect. 3. cap. 1. Riverius prax. medic. lib. x. cap. 1. Parvus observ. 4. Fabricius Hildanus cent. 3. observat. lxxiv. Henricus Smetius in miscelan. curios. lib. x. pag. 579. Euerimius in observat. select. p. 314. Adrianus Spigelius lib. 4. cap. 13.

(h) Benivenius de Abditis.

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Cold Vitreous Pituit (i) Salmuth relates a case wherein the whole Colon was so replete with Pituitous Matter, that there was only a small Passage left, the size of a Finger, for the Excrements to pass thro' (k). Chomel instances another, where the like Pituitous Matter adhered in little Parcels or Knobs to the outward Coats of the Guts, and thereby occasion'd the Cholick (l). This Humour, tho' term'd Melancholick, Pituitous, and Cold, by the Antients and many Moderns, (who imagine it to be a Phlegmatick unactive Part discharg'd from the Blood), is in reality nothing else but a whitish viscous Recrement, separated continually by the Glands of the Guts, (of the same Nature with the Ferment of the Stomach, but more viscous and glutinous) serving to the Concoction of the Aliments, and to defend the Guts from Irritations and Corrosions. Now if by any morbid Disposition of the Blood, from whence this Recrement is separated by the Intestinal Glands, it becomes not only more viscid and glutinous, but is also loaded with sharp or corrosive Salts, 'tis manifest it may both adhere to the Guts by its Glutinosity, and occasion Pains in them by the

D 2

Purgency

(i) Galen. lib. 2. de loc. Affect. cap. 2.

(k) Philippus Salmuth case. 1. observ. 78. Fernellius Pathol. lib. 6. cap. 5.

(l) Franciscus Chomel observ. 6. Riverio communicat.

Pungency or Corrosiveness) of its Salts. But that this Humour is either cold in its Nature, or if it were so, capable by its Coldness of occasioning so violent a Pain as the Cholick, I neither believe, nor can see any grounds to imagine. 6thly, The Cholick is often occasion'd in the Guts by Inflammations, Impostumes, Ulcers (m), Scirrhus's (n), Callosities (o), or Cancers (p), in them. 7thly, By Obstructions and Tumours of the Glands, situated in the Guts (q). 8thly, By the Overflowing of the Gall, which not only Irritates, Corrodes, and Inflames the Skins of the Guts, but Penetrates and Insinuates it self into their Substance, whence hot Pains of a long continuance, and hard to be remov'd, are often occasion'd in them (r). This last I take, next to Indigestions and Winds,

(m) Willis Pharmac. Rational. Sect. 3. cap. 1. Lazar. Riverius pract. lib. 10. cap. 1. Severinus de Abscessu, lib. 4. cap. 36. Adrianus Spigelius, lib. 4. de feb. semitettiana, cap. 13. Gulielmus Ballonius, Parad. 8.

(n) Lazarus Riverius Cent. 1. Observ. xc. Scholiger ad cap. 41. lib. 1. Hollerii, Ballonius, Parad. 83.

(o) Benivenius de Abditis, cap. 34.

(p) Joannes Sculterius Armament. Chirurg. Part 2. Observ. xlviii.

(q) Georgius Blasius, Observ. Medic. V. Bonet. Anat. Pract. pag. 906.

(r) Bilis in Intestinorum substantiam sese inferens, & amplo spatio imbuens & inficiens, vellicat, rodit, urisquæ, sicuti

Winds, to be the most frequent Cause of the Cholick; and I am confirm'd in this Opinion, by a multitude of Dissections, wherein the Guts, and particularly the Colon, have in Cholical Cases been found speckled with large yellow Spots, all ring'd with Gall, and sometimes so replete with it, that it might be taken out by Spoonfuls (s). To this Cause I attribute the Inflammation of the Guts, so frequent in all Cholicks, that Spigelius, who dissected vast numbers of those who died of this Distemper, affirms he never met with so much as one, in some part or other of whose Guts he did not find a true Inflammation; which in some had spread it self throughout the whole extent of both the Guts and Stomach (t). Under this Head

D 3 are

in ventriculo Ardores illos diuturnos, simili modo interdum evenire ex maculâ luteâ post mortem deprehendimus; & hoc idem in Intestinis accidere eâdem experienciâ cognovimus; hinc pendet diuturnitas & pertinacia Doloris. Platerus Practic. lib. 2. cap. 13. Riverius, lib. x. cap. 1.

(s) *Tho. Bartholin. in Act. Medic. Annor. 1674, 75, 76. Vol. 3. Observ. 34. Tulpus. lib. 2. Observ. 37. Fabricius Hildanus, Cent. 3. Observ. lxxiv. Alardus Hermanus Cummenus in Miscellan. Curios. An. 1673. Observ. 116. Tho. Kerckingius Observ. Anat. 1. Hachstetterus Decad. 8. Cas. 4. Ferrandus lib. de Nephretid. & Lithias. Sect. 30. Georgius Segerus in Miscelan. Curios. An. 1673. Observ. lxxxii.*

(t) *In omnibus quotquot, a Colico mortuis, aperire potui, veram Inflammationem conspexi in parte Ilii, Fejuni, vel Coli;*

are to be reckon'd as Causes of the Cholick, all those *Alterations* of the Gall, which render it more *Pungent* or *Corrosive*; also *Superpurgations* and *violent Vomits*, which occasion too great a *Secretion* of the Gall into the Guts. Now if the *Inflammation* of the Guts, and the *Overflowing* of the Gall into them, are even in *Wind Cholicks* so generally the Causes or Symptoms of this Distemper, that it scarce ever happens without one or both of them, as 'tis evident from a multitude of *Dissections* made by *Spigelius* (t), *Willis* (u) and others above cited; let any one consider how improper, for the generality, *hot Medicines* must be in the Cholick, and whether their *Contraries* are not frequently better indicated and rather to be preferib'd? vizibly, By *Wounds* in the Guts; by *Blood extravasated* into their Cavity; by the *Urine imbib'd into*, or *pressing upon* their Substance in cases where the *Bladder* happens to be burst or torn;

li; vidi quibus omnia Intestina, & Ventriculus erant Inflammata. Adrianus Spigelius, lib. 4. cap. 13.

(u) Cum plurimum a Coli Inflammatione Defunctorum cadavera aperui, reperi in omnibus cuncta Intestina ad summum distenta & quasi à vento inflata. Willis Pharmac. Rational. Sect. 3. cap. 1. — Ubi ipse contra celebrem Authorem Arbitror Inflammationem à Distensione, non Distensionem ab Inflammatione fuisse productam.

torn (w); and by any sort of *Acrimonious Corrosive Poison* taken inwardly. 10thly, From the violent *Compression of the Guts* by a Rupture, or by any Tumour, Schirrus, or Callosity in the adjacent Parts, or in their own Substance, (x) by which the natural Evacuation of their Excrements is hinder'd; Inflammations and painful Sensations frequently occasion'd. 11thly, By *Worms* (y) which gnaw, and sometimes eat Holes quite through the Guts; of which *Riverius* assures us he saw two Instances in one Family, both causing violent Cholicks. 12thly, From *Tartareous Concretions*, and *Stones* in the Guts, of which we read many Instances in Authors (z); *Severinus* tells us he found a Stone in the Colon, as large as a Goose Egg (a); *Ballonius* another with a hole through it to let Liquids pass (b); *Faber* saw a Cholick cur'd by the voiding of 233 Stones by Stools; and *Schenkius* made a large Collection

D 4

(w) *Platerus prax. lib. 3. cap. 3.* *Tulpius lib. 3. cap. 2.*

(x) *Benivenius de Abditif. cap. 34.* *Bonetus Anat. Practic. pag. 900.*

(y) *Frid. Loffius lib. 2. Observ. 33.* *Riverius, &c.*

(z) *Georgius Horstius, Tom. 2. lib. 4. Observ. 47.* *Schneiderus, lib. 3. de Cathar. cap. 7.* *Bonetus Anatom. practic. pag. 901.* *Riverius Glissonius, &c.*

(a) *Severinus de Abscessu, lib. 3. cap. 29.*

(b) *Ballonius Consil. 24. lib. 3.*

The Causes of

Stones are
form'd
within the
Cavity of
the Guts.

lection of Examples, where *Topb's* and *Stones* had been voided by Stools. Now whether the Stones found in the Guts are generated within their Cavity, or fall from the Liver or Gall-Bladder into them, is no great matter; since 'tis undeniable that they are often found in the Guts, and may either by their *Weight*, by their *sharp Points*, or by *stopping the Excrements*, occasion violent Pains in them. Though to me it seems probable that Stones are often form'd within the Guts themselves; my Reasons are, 1st, Because if they came from the Gall-Bladder, or any other Part of the Liver, they would, being but small, probably be voided with the Excrements, before they had time to grow much larger: 2^{dly}, Because they could never be perforated (as it happen'd in the above-cited Instance from *Ballonius*.) after their Formation; 3^{dly}, Because *Zacutus* found a Stone as big as a Chestnut, firmly and almost inseparably adhering to one side of the Colon (c), where in all appearance it must have begun its *Lapidification*: 4^{thly}, Because *Stones* are often found in the *Stomach*, whither they cannot fall from the Liver, or any other Part; and if they grow in the *Stomach*,

(c) *Zacutus Lusitanus prax. admirand. lib. 3. cap. cxxxiii.*

mach, why not in the Guts? *sibly*, Because *Horsius* assures us, that he found several little round Balls affix'd to the Colon, barden'd but not quite Stony, yet of that Concretion, that they would certainly in process of time have become Stones (d).

Besides all these Causes, Authors relate several odd Accidents in the Guts, which have occasion'd the Cholick; as that of a great quantity of barden'd Cheese brought away by a Clyster, mention'd in *Riverius* (e). Another of a Man in whose Guts were found Three Pound Weight of Plumbstones and Cherry-stones, that had been lodg'd in them for some Years, related by *Benningerus* (f). A Third of a *Swiss*, who being accusom'd to eat Nails and Knives, for a shew to get Money by, died of the Cholick, occasion'd by two Splinters of a Knife which stuck in his Guts (g). And several others of the like Nature.

Odd Accidents, the Causes of the Cholick.

Tho' a Pain in the Stomach is by all Authors treated of under a separate Head from the Cholick, yet as I don't restrain the Seat of the Cholick to the Colon, nor even

The Stomach the Seat of the Cholick.

(d) *Georgius Horsius*, lib. 4. *Observ.* xlvi.

(e) *Lazarus Riverius* *prax. Medic.* lib. x. cap. 11.

(f) *Nicolaus Benningerus*, *Cent. ii. Observ.* 29.

(g) *Jacobus Rothius* in *Miscellan. Curios. An.* 1672, *Observ.* 179.

to all the Guts; but include under the Description of it, all violent Pains felt in the Lower-Belly, that are not apparent Symptoms of other Distempers, except what are seated in the Kidneys, Ureters and Bladder, which I reserve for a distinct Treatise; and as a painful Sensation either in the *bottom of the Stomach*, or in its *Lower Orifice*, are scarce distinguishable from a Pain in the *Duodenum*, or in that part of the Colon which lies across immediately under the Stomach; as most of the same Causes which occasion violent Pains in the Guts, may and do often occasion the like in the Stomach, and frequently in both at the same time; and as this Pain from its Similitude to the other, is call'd the *Cholick in the Stomach*, and is cur'd by the same Remedies; therefore I shall comprehend under the general Name of Cholick, all violent Pains felt in the Stomach, which are not manifestly referable to other Distempers, except the Pain call'd *καρδιαλγία* or *Heartburne*, which being occasion'd by an Irritation in the Superior Orifice of the Stomach, is seated, felt, and referr'd, rather to the Upper-Belly, or Breast, than to the Lower-Belly. Now a violent Pain, or the Cholick, may be occasion'd in the Stomach, by *Winds*, *Cruditities*, *Indigestions*; by *sharp*, *sower*, or *Corrosive Humours*, either in the Aliments, or discharg'd

discharg'd from the Blood: By Inflammations, Impostumes, Ulcers, Tumours or Cancers in its Substance, to all which Alterations the Stomach is by its Texture, and from Experience as liable as the Guts; by the Effusion of the Gall into its Cavity, and its penetrating and being imbib'd into its Coats (*b*); and sometimes by the Implantation of the Gall-duct into the Cavity of the Stomach, whence frequent Effusions of the Gall into it, and violent Pains have ensued (*i*). By Stones generated and lodg'd in the Stomach, of which you may read many undeniable Proofs in the under cited Authors (*k*). By casual Accidents, as Wounds, the Extravasation of Blood, Corrosive Poisons; the swallowing of Substances not digestible, which lie with a Weight and heavy Load upon the Stomach, such as *v. g.* a hard Rhind

(*b*) *Platerus lib. 2. Observat. pag. 436, 468. Tho. Bartholin. in Act. medic. Amor. 1674. 75, 76. Vol. 3. Observ. 34. Solenander consil. 16. Sect. 5. Willis Pharmac. Rational. cap. 1.*

(*i*) *Zacutus Lusitanus prax. admirand. lib. 2. Observ. 1. Vessalius, lib. 5. cap. 8. Cabrollius Observ. Anat. 6. Haferus, lib. 3. cap. 3.*

(*k*) *Bonetus Anat. Practic. pag. 781. Schenkius lib. 3. Observat. Cardanus contrad. 9. lib. 2. Tract. 5. Haferus, lib. 3. cap. 1. Simon Schulzius in Miscellan. Curios. An. 1673. Observ. 86. Georgius Horstius, Tom. 1. pag. 1142.*

Rhind of smoak'd Bacon, which remain'd in a Man's Stomach for two whole Years, and occasion'd continual Pains of the Cholic, till thrown up by a Vomit, as 'tis related by *Hildanus* and *Riverius* (l): that of a Pound of Ginger found in the Stomach of another, which occasion'd the like Disorders (m). Lastly by *Worms*, or *Lice*, gnawing the Stomach (n): And Authors give us Instances of other Animals, as *Toads*, *Serpents*, *Lizards*, &c. breeding within the Stomach, and therein occasioning violent Pains. *Gesnerus* (o) relates, that in and about a Town in *Hungary*, call'd *Zisca*, near Three Thousand People died, *Anno 1551*, of intollerable Pains occasion'd by *Serpents* and *Lizards* bred within them; which when these miserable People lay down in the Sun, would often peep their Heads out at the Patients Mouths and immediately run back into their Bellies.

Bartho-

(l) *Hildanus*, lib. 4. *Observat.* 33. *Riverius pract.* lib. 9. cap. x.

(m) *Platerus Observat.* lib. 2. pag. 1435.

(n) *Hercules Saxonia praest. pract.* part. 2. cap. 7. *Heurnius de morbis capitis*, cap. 7. *Zwingerus Theatr. vita humana*, pag. 525.

(o) *Gesnerus Historia Animalium*, lib. 2. cap. de *Lacertis*.

Bartholinus, and *Wolgnad* (p) assure us, that one *Carherine Geileria*, who died *Anna* 1662, in the Hospital of *Altenburg*, did for Twenty Years together vomit up many *Toads*, and a great deal of stuff like to their Spawn, which occasion'd violent Pains of the Cholick in her Stomach. These indeed are wonderful Causes of the Cholick, and mention'd here, not as such which I suppose will ever occur again, or ought to be enquired after; but to imprint, by the Extraordinariness of the Facts, in the Memory of Practitioners, that a Cause seldom thought of, viz. *Worms* and *Insects* within Human Bodies, are very often the Original Causes of *Cholicks*, *Convulsions* and *Epilepsies*, (q) not only in Children, but in Adult Persons. But if any one is pleas'd to dispute the Truth of these strange Facts, I can say no more than that they are attested by Authors of good Repute, whose Books and Pages I have cited, and may be turn'd to. Yet to me they seem both possible, and no ways inconsistent with the usual Course of Nature.

(p) *Bartholinus* Cent. 4. *Histor.* 19. *Wolgnad* in *Anas. practic.* Boneti, lib. 3. Sect. 17.

(q) *Bonetus Anatom. practic.* pag. 279, 242. *Fabianus Rhodius* Cent. 1. *Observ.* lxx. *Frid. Loffius*, lib. 2. *Observ.* 33.

ture. For if the Eggs of Worms are hatch'd, and produce those Insects, not only in the Stomach and Guts, but even in the Blood it self, as it must be when Worms are found in the Head (r), Liver (s), vitreous Humour of the Eye (t), and in the Ventricle of the Heart, which is very common in Dogs, and sometimes happens to Men: If it is usual to find real live Serpents a Foot long in the Kidneys of Wolves (u): If Doctor May (w) found a Snake in the left Ventricle of a young Gentleman's Heart, who died in London, Anno 1639; and Holzerius a Scorpion in a Sinus of the Brain (x); why is it not possible that the Eggs of Water Serpents, Lizards and Toads, being swallow'd with the Water that was drank, might find a requisite and just Temperature of Heat to hatch them in the Stomachs of those miserable People? which is undeniable, if what Gesnerus (y) adds

I agree, whose Book and Pages I have cited, and may be found in Y

(r) Petrus Borellus, Cent. 3. Observ. 33. Jo. Rhodius, Cent. 1. Observ. lxxxiii.

(s) Christianus Frommanus in Miscellan. Curios. pag. 250. Kircherus de Peste Sect. 1. cap. 7. Galen.

(t) Iho. Bartholinus, Cent. 3. Observ. 48.

(u) Gaspar Bauhinus, lib. 1. de Corporis humani fabrica, cap. 17. Joannes Bauhinus Tract. de Luporum rabie, pag. 77. Carolus Stephanus de Agricultura, lib. 7. cap. 1.

(w) Marcus Severinus de Abscessu, pag. 1287.

(x) Panetus Sepulchr. Anatom. lib. 2. Sect. 4.

(y) Gesnerus Histor. Animal, lib. 2.

be true, viz. That in the Dissection of a young Lady two live Serpents were found in her Stomach.

Having establish'd so many different Causes of the Cholick, most of them from Matter of Fact, Dissections, and Ocular Proofs, I will, for the Ease and Convenience of my Readers, range them under distinct Heads; and in the following Chapter explain how, and by what Mechanisms, each of them is capable of producing that violent Pain call'd the Cholick.

The CAUSES of the Cholick are,

1. *Crudities and Indigestions of various Natures in the Guts and Stomach; under this Head are compris'd all sharp and sow'r Liquors; green Fruits, and Meats of ill Digestion.* Enumeration of the several Causes of the Cholick;
2. *Winds which swell and stretch the Guts or Stomach.*
3. *The Hardness and Retention of the Excrements.*
4. *Sharp, Sow'r, or Corrosive Humours discharg'd from the Blood upon the Guts, Stomach, or any Part within the Lower-Belly.*
5. *The Humours of the Gout, Scurvey, Rheumatism, Venereal Distempers, &c. translated from other Parts upon the Guts or Stomach.*
6. The

The Causes of

6. The Overflowing of the Gall into the Guts or Stomach, its insinuating and penetrating into their Coats, or into other Parts contain'd within the Lower-Belly. Also all Alterations of the Gall, which render it more Irritating and Corrosive.

7. Ruptures ; or the violent Compression of the Guts, of the Stomach, or of any other Parts within the Lower-Belly, by Tumours, Schirrus's, Stones, &c.

8. The Rupture, or Relaxation of Ligaments, whereby the Liver, Spleen, or Womb fall from their natural Situations, and press upon other Parts.

9. Inflammations, Imposthumes, Ulcers, or Cancers in the Peritonæum, Renal Glands, Pancreas, Liver, Spleen, Guts, or Stomach.

10. The Collection of Watry Humours, Swellings, Obstructions, or Schirrus's in the Peritonæum, Mesentery, Caul, Pancreas, Spleen, Liver, Womb, Guts, or Stomach.

11. Callosities, Stony Concretions, Gravel, or Stones, in the Pancreas, Liver, Spleen, Guts or Stomach.

12. Viscous Pituitous Humours adhering to the Guts.

13. The Preternatural Adhesion of one Part to another ; as of the Liver to the Diaphragm, the Pancreas to the Spleen, or

or Stomach, whereby the Superior Parts are sometimes weigh'd down with that Force, as to occasion violent Pains and Inflammations in them.

14. *The Preternatural Position of Parts*; as of the *Gall-duct* inserted into the Stomach. The *Cartilago Ensiformis*, or *Xiphoides*, grown into a Bony Excrescence, and inverted upon the Stomach.

15. A *Caries* in the Bones of the Lower-Belly, which (tho' very rare) has sometimes occasion'd violent Pains of the Cholick (a).

16. Sudden *Colds*, or *Passions*, in weak and tender People.

17. *Worms*, and other *Insects*, which gnaw and sometimes eat Holes thro' the Guts, Stomach, or other Parts within the Lower-belly: A Cause much more frequent, even in grown up People, than generally imagin'd.

18. A *Pestilential* Constitution in the Air, which renders the Cholick *Epidemical*; as *Paulus Aegineta*, and *Sydenham* observ'd.

19. The *Stone*, *Gravel*, or *Inflammations* in the *Kidneys*, *Ureters*, or *Bladder*; which I mention here only as Causes that very frequently impose so far upon the

E

Patient

(a) *Benivenius de Abditis*, cap. 79.

Patient and Physician, as to make them mistake one Cholick for another, as it happen'd to *Galen* in his own Case (a). For I design to write a distinct Treatise of the *Nephretick Cholick*, which I had almost finish'd above Six Years ago, when I had the Misfortune to loose all my Papers, wherein were a Multitude of Experiments my present Practice won't allow me Time to renew in haste.

(a) *Galenus, lib. 2. de Loc. Affect. cap. 5.*

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C H A P. II.

Mechanical Explanations of the several Symptoms and Accidents of the CHOLICK.

IN the precedent Chapter I establish'd many different Causes of the Cholick: In this I shall endeavour to account for their Effects, and to explain how, and by what Mechanisms, they are capable of occasioning such exquisite Pains. To do this clearly, it will be necessary to premise, and settle an Idea of Pain in general.

Pain is by all Authors describ'd to be; *a troublesome Sensation, proceeding from a Solution of Continuity in the Part*; wherein if I differ from them, 'tis not out of any Affectation of Novelty, or to appear singular, but from a sincere Desire to discover and deliver the Truth in every thing, as far as it is known to me, without suffering the Authority of others to prevail over my Reason. Wherefore I describe Pain to be *A troublesome Sensation, occasi-*

The Description of Pain.

on'd by a violent Reflux or Undulation of the Spirits, from the Part affected up to the Brain. Willis (a), and all Authors unanimously agree, that there must be a violent Motion in the Spirits, to occasion the Sense of Pain: I have prov'd (pag. 25.) that all Sensations whatsoever are made in the Brain, and only referr'd to the Part; therefore it evidently follows that this violent Motion must be communicated up to the Brain, before it can occasion the Sense of Pain referr'd to the Part: consequently in the Perception of Pain, every thing does of necessity always happen that is mention'd in this Description of it; viz. a violent Motion of the Spirits, and a Continuation of that Motion from the Part up to the Brain.

The Solution of Continuity not necessary to the Sense of Pain.

But it is not so of the common receiv'd Description of Pain, for a Solution of Continuity, tho' it may often happen, is not inseparable, and always necessary to the Sense of Pain; which I prove by the following Matters of Fact. 1st, That a Feather drawn gently over one's Lip, will occasion a troublesome Uneasiness or Pain, without any Solution of Continuity. 2^{dly}, If the Solution of Continuity were that which occasion'd Pain, it would follow, that the greater the Solution,

(a) Willis de Medicamentor. Operat. Part. 2. Sect. 3. Cap. 6.

lution, the greater would be the Pain; whereas Experience convinces us of the contrary: For if you cut a Tendon or Nerve, the Pain is moderate and soon ceases; if you prick or stretch them, it shall be violent and of long Continuance. In an Impostume that suppurates, there is a much greater Solution of Continuity; but much less Pain, than when it began with an Inflammation. The Stone in a Kidney shall occasion violent Pains, whilst the Substance of the Kidney continues united, which entirely cease, when it is dissolv'd into Corruption. *Opium* causes the Cessation of Pain, but not the Reunion of a Solution in the Continuity of a Part; on the contrary, it obstructs the Cure of Wounds. And to use a familiar Comparison, there is the same Reason to say, that the *Stretching of a String* does not suffice, but that the *Breaking* of it is necessary to produce a Sound; as that the Irritation or Stretching of a Nerve, cannot create a Pain without the Solution or breaking of it. Again, the Solution of any Muscular, Tendinous, or Membranous Fibres, can contribute nothing to the Sense of Pain, because not they, but the Nerves are the Organs of the Sense of Feeling. And if you will have the Nerves to be once broke, they can be no longer capable of transmitting any Motion, (either by the Spirits

contain'd in them, or by their whole Substance) from the Part affected up to the Brain, wherein all Sensations are made; consequently there could be no such thing as a continual persevering Pain; but every distinct Sensation of Pain would terminate the same Moment it began, that is, with the Solution of the Continuity, or the breaking of the Nerve; which is contrary to daily Experience. From these Reasons I conclude, that the Solution of Continuity is no ways requisite, nor has any relation, to the Sense of Pain; but that all Pain is occasion'd by the Irritation or Pressure of the Nerves in the Part affected; whereby a violent Motion, Reflex, or Undulation of the Spirits is made from that Part up to the Brain. Indeed *Willis* (a), tho' he affirms a Solution of Continuity to be always necessary to the Sense of Pain, yet allows that the continuous Parts, especially the Nervous Fibres, are not broke, but that it suffices (as I say it does) to have them irritated, press'd, or stretch'd: But he will have it, that the Spirits contain'd in the Nerves are thereby torn asunder from their mutual Cohæſion, and diffipated; in which Division and Diffipation of the Spirits, he seems to establish

(a) *Willis de Medicamentor. Operat. Part. 2. Sect. 3. Cap. 6.*

stablish both the Solution of Continuity, and the Sense of Pain, residing and felt in the Part it self. But no Division of the Spirits, which are a Liquid Body, can be truly stil'd a Solution of Continuity, which is only proper to solid Parts. And he must certainly be mistaken in his Notion of Pain, when he affirms that it consists in the Disunion and Divulsion of the Animal Spirits, whereby the Nerves are stretch'd and contracted. (a) To which he pretends there is absolutely requisite either a Mixture of heterogeneous Particles in the Spirits themselves, or else the Action of some outward Cause penetrating thro' the Pores of the Fibres. I say he must be mistaken herein, both as to the Effects and the Causes; because it is undeniable that I can at any time occasion a violent Pain in any Part of a Body ever so sound and well constituted, by the *bare Pressure of my Finger*; and no body can suppose heterogeneous or morbid Particles, to be mixt every where with the Spirits in the soundest and healthiest Constitution; nor that the Pressure of my Finger does convey any thing thro' the Pores into the Nerves; wherefore it remains that such a Pressure can occasion a Pain no other ways,

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than

(a) Willis *Pars Pathol.* Cap. 1. de *Cephalalgia*.

than by forcing the Spirits to flow in a violent Motion from the Part affected up to the Brain; which being the Nature of all Liquids, is plain and easie to be conceiv'd, and must necessarily happen, if all Sensations are made in the Brain; as they certainly are, and not in the Part itself, as *Willis* (a) and others falsely imagine, when they pretend that all Pains are occasion'd by the Contractions and Convulsions of the Nerves within the Part affected. For what Proof can any one bring me, that there ever is a Contraction in the Nervous Fibres alone? Or what Reason is there so much as to fancy it? since *Willis* himself (b), the Assertor of it, and all Anatomists, are convinc'd from the Experiment of tying a Ligature upon the Arteries, and from other Reasons, that the Spirits contain'd within the Nerves, whether duly constituted, or vitiated by heterogeneous Mixtures, are not capable of making the least Contraction in the Muscles, but require the Concurrence and Mixture of some other Particles from the Blood to effect it; (which Mixture is made within the Pores of the Muscular Fibres, not within the Cavities of the Nerves) how then shall the Nerves be contracted? or why

(a) *Willis Pars Pathol. cap. 1.*

(a) *Willis de Morbis Convulsivis. Cap. 1.*

why should any one believe they ever are? when the Fact is neither seen, prov'd, nor necessary upon any account, especially to the Sense of Pain, which, as I have said, is an Idea or Conception of the Mind, that something troublesome and noxious affects such a Part; occasion'd by a violent Reflux or Undulation of the Spirits from that Part up to the *Commune Sensorium*, or *Corpus Callosum* of the Brain, wherein the Spirits stretch, press, or make a sudden and strong Impression (which remains fixt there for the Use and Office of Memory) on the Origin of that or those Nerves which belong to the Part affected; which *Pressure, Stretching, or Impression* makes the Soul sensible that the Cause lies in that Part where such a distinct Nerve terminates, and that it acts with Violence; and from the Soul's Knowledge that such a particular Nerve belongs to that Part, and to no other, it is, that she refers the Pain to that Part. The final End of which is, that the other Members which are capable of effecting it, may upon this Knowledge use their Endeavours to remove the Cause from the true and individual Part affected. This to me seems a clearer, fuller, and more mechanical Explanation of the Sense of Pain, than any I have met with, and is carrying it as far as possible. For how and in what manner Material Bodies,

Explanation of the Symptoms

Bodies, as the Animal Spirits are, can act upon an Immaterial, Inextensive Being, as the Soul is, is beyond the Reach of Human Thought; it can only be imperfectly accounted for, by saying, that God has united the Soul to the Body with such Laws, that whenever such and such Motions of the Spirits are made in the Brain, then the Soul shall be affected with such an *Idea* or *Sensation*. And from the different Degrees and Modifications of these violent Motions of the Spirits up to the Brain, proceed the distinguishable Perceptions of different Sorts of Pains; such as are,

*A Tensive
Pain, how
occasion'd*

1. A *Tensive Pain*, which induces an Idea of a violent Stretching in the Part, occasion'd by a sudden and preternatural Distention of it. This Distention equally affects the Nerves of that Part, as its fleshy or muscular Fibres. The Nerves can't be stretch'd out into a longer Extent, but that the Diameter of their Cavities must be lessen'd in Length, nor their Cavities so lessen'd, but that part of the Spirits contain'd in them must flow into some other Place; not into the Part affected, for that being already fill'd to a preternatural Repletion, it presses every thing from it; consequently no other way is left for the Spirits to flow, but backwards up their own Channels, into the *Corpus Callosum*

Cere-

of the CHOLICK.

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Cerebri; which being a common Bason, or Receptacle for the Spirits, there is both Room for them in it, and thither their violent *Reflux* or *Undulation* is useful and necessary, to cause such a Pressure on the Origin of those Nerves, as shall both make the Soul sensible that something preternatural affects that Part, and also of the manner of its affecting it; which is, that a number of Fibres contain'd within the Circumference of such a Part, are all stretcht with Violence at the same time. Thence the Soul conceives the Idea of a *Tensive Pain*, very distinguishable from that of a *Pressive Pain*, occasioning the Con-
ception of a heavy Load weighing upon the Part; which tho' it may at another time affect all the same individual Fibres and Nerves in the self-same Place, shall create a quite different Sensation, from the different *Undulation* of the Spirits, proceeding from the different Action of the Causes, which in the *Tensive* stretch the Nerves of the Part, in the *Pressive* weigh upon them, or force them against some other Body that resists. These and all other different Sensations of Pain, are very difficult to be rightly distinguish'd asunder, when seated in the inward Parts of the Body (of which we have no clear Ideas) and it is only from Experience, and a Comparison

A Pressive
Pain.

Explanation of the Symptoms

parison to what we have observ'd in the outward Parts, that they are in some manner known and distinguish'd. For Example, that since upon the violent swelling of my Hand, I felt that Modification of Pain, I call *Tensive*, if the like Sense of Pain happens to any inward Part, I immediately imagine there is such another swelling in that inward Part, as I saw in my Hand. The Sensation of a Tensive Pain may be occasion'd in the Cholick, either by *Winds* which swell and stretch the Guts or Stomach; by the *Rarefaction of Humours* in any part of the Lower-belly; by the *Retention and Hardness of the Excrements*; by *Ruptures, Inflammations, Obstructions, or Tumours*; by a great *Collection of wat'ry Humours* within any Cavity, or between any Skins; by *Stony Concretions*; or by *the weight of an Inferior Part, pulling down a Superior one with Violence*, as the Liver may the Diaphragm when adherent to it. The *Pressive or Heavy Pain* may happen in the Cholick, by the *Relaxation or Rupture of Ligaments*, whereby the Liver, Spleen, Womb, &c. may fall from their natural Situations, and press upon Inferior Parts; or by *Tumours, Schirrus's, Stones, &c.* pressing the adjacent Parts against any firm Substance.

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2. A *Boreing Pain*, wherein it seems to the Patient as if an *Augre* were screw'd into the Part, is occasion'd by whatsoever Cause begins its violent Action upon the Surface, and penetrates by degrees deeper and deeper with the same Violence far into its Substance. This may happen in the Cholick, when the Gall, or any other corrosive Humour, is imbib'd and penetrates into the Coats and Substance of the Guts, Stomach, or other Parts within the Lower-belly.

3. A *Pungent* or *Pricking Pain*, is that which represents to us the Idea of some Sharp pointed thing penetrating suddenly into the Part. This may happen in the Cholick, either from the Action of *Sharp, Acid Humours*, which do actually perforate the Nervous Fibres with their acute Points, like Needles; or by *Erisipelatous Inflammations* in the Guts, or other Parts of the Lower-belly, which when extended to a very narrow Circumference, occasion the like Sensations; as is daily experienc'd in the *Erisipela* of any outward Part, where, though the real Cause is visible to the Eye, we can't but fancy we feel the pricking of a Needle in the Part. This Sensation may also be occasion'd by the *Suppuration of any Tumour* within the Lower-belly, which discharging its corrupted Humours thro' a small Orifice

Explanation of the Symptoms

Orifice of the Skin, contracts all the Pain into that narrow Compass; and lastly, by the *Sharp Points of Stones* lodg'd in any Part of the Lower-belly.

A Launcing Pain,

4. A *Launcing Pain*, is that wherein it seems to the Patient, as if some sharp-edg'd Tool did cut thro' the Part suddenly and with Violence at repeated Intervals; or else that something Tears it by Starts and Jerks. This Sensation may happen, either when the Pains of the Cholick proceed from a *Cancer* in the Lower-belly, whose fix'd corrosive Salts being put into Motion irritate and vellicate the Nervous Fibres which run across its Substance; as by daily Experience we find it happens in the *Cancers* of the Breast, and of other outward Parts: Or else by the *Suppuration of any inward Tumour*, which fermenting, and emptying itself by Intervals, irritates the Nervous Fibres of the Skin it is discharg'd thro', by Starts and Jerks, answerable to the Intervals of its Evacuation.

A Burning Pain,

5. A *Burning Pain*, is occasion'd by the violent Fermentation of the Blood, or Humours, in any Part; which by the uninterrupted Motion of their Salts continually irritating the Nervous Fibres, induces the Sensation both of Heat, and of innumerable little Prickings at the same time. This *Burning Pain* may happen whensoever

of the CHOLICK.

soever the Cholick is produc'd by a very violent *Inflammation*, or by a *Corrosive Ulcer*.

6. A *Gnawing Pain*, is then perceiv'd *A Gnawing Pain*, when Irritations of different Degrees, are made in distinct and separate Fibres of the same Part, at one and the same time; whereby it seems to the Patient as if many Teeth tore and ground it. This Sensation may arise in the Cholick when different Humours, as those of the *Gout*, *Scurvy*, *Gall*, and *Rhumatism* happen to corrode the same Part in distinct Fibres, and with unequal Force at the same time. But this, neither as to the Causes, nor as to the manner of Production, do I assert as a thing positive and certain, but only as a probable one.

7. A *Beating Pain* is that, wherein an *A Beating Pain*, uneasy throbbing Motion, returning by short Intervals, is felt in the Part. This may happen in the Cholick either by the Extraordinary *Dilatation of the Great Artery*, by the *Rupture of a small one*, or by an *Obstruction* that hinders the free Circulation of the Blood, thro' the fleshy Fibres, from the Arteries into the Capillary Veins; whereby the Blood being stop't in the Part, and fresh Supplies continually prest upon it from the Heart, it must inevitably swell and stretch the Fibres of that Part, at the same Intervals that the Heart beats, and the Pulse

Explanation of the Symptoms

is felt in the Arteries. This *Beating Pain* will be perceiv'd in the Lower-belly, whensoever the Cholick is accompany'd with, or occasion'd by, any of these three Causes; viz. the *Dilatation* or *Rupture of an Artery*, or an *Obstruction*; Instances of which may be seen in the undercited Authors (a).

A Tearing Pain,

8. A *Tearing Pain*, wherein it seems to the Patient as if the Fibres of the Part were torn from their adherence to each other, happens when the Salts concentered into large Particles, or any Humours press between, and force asunder the little Nervous Fibres, which were closely united and adherent before.

Now whereas these Causes, acting with Violence, occasion a sudden and strong *Undulation* of the Spirits (tho' after different Modifications) from the Part effected up to the Brain, a *Pressure*, *Divulsion*, or *Impression* is thereby made in the *Corpus Callosum Cerebri* upon the Origin of the Nerves belonging to the Part affected, whereby the Soul, according to the hidden Laws of its Union with the Body, is made sensible both of the Pain, its different Modification, and of the Place or Part affected.

The

(a) Michael Doringius ad Sennertum Cent. 1. Epist. 25. Bontius observat. viii. Columbus Anatom. lib. xv. Fallopius lib. de Tumor. praternatural. Cap. 14.

The chief Symptom of the Cholick, is a violent Pain in the Lower-belly; which may proceed from any one of the several Causes already mention'd, occasioning a sudden and violent Reflux or Undulation of the Spirits, from the Part affected up to the Brain.

When the Pain spreads itself all over the Belly, 'tis occasion'd for the most part by Winds, which swell and stretch the whole Extent of the Guts; whereby violent Undulations of the Spirits are made at one and the same time from almost every individual Part of them, up to the Brain: It may also be occasion'd by the Irritations of Crudities and Indigestions; by Sower or Corrosive Humours discharg'd from the Blood; by the Humours of the Gout, Scurvy, Rheumatism, &c. translated from other Parts upon the Guts; or by the Overflowing of the Gall into them. Any of which Causes affecting the whole Extent, or greatest part of the Guts, will occasion violent Undulations of the Spirits from innumerable Places at once up to the Brain, and consequently a Sensation of Pain, indistinctly referable to so many Places, that it seems to affect the whole Circumference of the Lower belly.

A First Pain of the Cholick will then happen, when any one of the several Causes above-mention'd, constantly affects

F

one

From
whence a
Pain all o-
ver the
Belly.

A first Pain
of the Cho-
lick.

one particular Bowel, or some one Distinct Part of the Guts; whereby violent Undulations of the Spirits are continually made from that Part only up to the Brain. The manner how a fixt Pain bores like an Augre, has already been explained.

*A moving
Pain of the
Cholick.*

The Pain of the Cholick, which, being fixt for a while in one Part of the Belly, *removes* on a sudden, and is felt in another Part of it, and thus often *changes* its Situation from Place to Place, is occasion'd by Winds, Indigestions, or Morbid Humours contain'd within the Cavities of the Guts; which being stop't for a while by their Valvules in one Part, then forc'd by their Vermicular Motion into another, where the like Valvules stop them again; their violent Action upon the Nerves causes the Pain to be felt in that Part to which they remove, and wherein they are stop'd.

*From
whence the
Sensation
of some-
thing bind-
ing the Bel-
ly or Guts.*

The Texture of the Colon is particularly remarkable, as different from that of all the other Guts: for besides its exterior Membrane; (which I take, and a very Learn'd Author (a) affirms to be the Expansion of the *Pleura*, not of the *Peritoneum*, as is generally imagin'd) the Long and

(a) Chirac in Praelect. Anatomic. habit. Monspel. Anno 1694.

and Orbicular Fibres; the Nervous Coat; and Glandulous Membrane, which are common to it and all the other Guts; it has also a *Ligament of Flefhy Fibres* about half a finger broad, running along its whole length, and many *Orbicular Ligaments* which from space to space divide this Gut into little *Cells* or *Cavities*, resembling a *Glass Incorporator*; the use of which is, to retain the diffolv'd Aliments, 'till all the Chyle is absorb'd into the Lacteals. For 'tis matter of Fact that they pass quick thro' all the other Guts, which are generally found empty, and make the longest aboad in this. Now if the Fibres of these Orbicular Ligaments happen from any Cause to be put into violent Contractions or Convulsions, 'tis manifest that they will bind and streighten the Cavity of this Gut, in the same manner as if so many Cords were ty'd hard round its outside, and occasion the like violent Undulation of the Spirits from those Parts up to the Brain, as a Cord ty'd hard round any outward Part will do: whence the Soul, which had clear Ideas of the Causes which bound the outward Parts, and of their manner of acting, imagines from the simular Undulations of the Spirits up to the Brain, that a like Cause affects the Inward Parts, of which she has no clear Idea; and thinks that some

Explanation of the Symptoms

Part within the Belly, (as in reality it then happens to the Colon) is pull'd close together with Violence by something that surrounds it.

Whence the Swelling of the Belly. The *Swelling of the Belly* in so violent a manner, that the Muscles and Skins seem ready to burst, if 'tis but of short Continuance, can be occasion'd by nothing but Winds, which distend the whole Cavity of the Guts in an extraordinary manner; whence they press the Muscles of the Abdomen outwards, and keep them violently stretch'd for the time, that those Winds continue to blow up the Guts: If permanent, and of long Continuance, they must be occasion'd either by a Vast Collection of Watry Humours between some Skins, or within some Bowel of the Lower-belly; or by an extraordinary Tumour, or Excrescence of some of its inward Parts.

Whence the drawing of the Belly inwards. That these same Muscles are sometimes drawn inwards, so close to the Back-bone that scarce any appearance of the Belly remains, and that one may even feel the Pulsation of the Great Artery which lies underneath all the Guts, can be attributed to nothing, but a violent Contraction, or rather permanent Convulsion in them, whereby they press the Guts, Liver, Spleen, &c. up towards the Breast, and leave the bottom of the Belly almost empty. The matter

matter of Fact is undeniable, many Authors testifie it, and I have met with it more than once my self. But why such violent Contractions or Convulsions should happen to these Muscles in the Cholick, and to no others, is not easie to account for. The most mechanical way of doing it, is to suppose, that, as this seldom happens, 'tis only in those Cholicks, which are occasion'd by *Viscid, Glutinous Humours*, impacted and adhering to the Coats of the Guts; and that the Blood partakes of the same Viscidity, whence the *Copula Explosiva* separated in the Pores of the Muscles for their Contractions, becomes also more viscid and glutinous than naturally: This granted, I say the Reason why these violent Contractions or Convulsions happen to the Muscles of the Abdomen, and to no others, is because the Spirits undulating, with Violence from the Guts affected, back to the Brain, are determin'd by their *Angle of Incidence* to flow precisely into the Muscles of the Lower-belly, where meeting with a *Copula Explosiva* preternaturally viscid and glutinous, the nitroacrial Particles of the Spirits cannot cause that sudden Explosion they are us'd to make, with the Sulphurous Alkaline Recrement of the Blood duly constituted, (whereby both are soon attenuated into lesser Particles, and evaporated partly into

the Blood, partly into the Air, thro' the insensible Pores of the Body) but make a Swelling and Rarefaction in the Pores of their Fibres, like to the Fermentation of Dough; by which these Muscles are kept in one continu'd Contraction or Convulsion for a long time together; and thereby it is that they press all the loose Parts contain'd within the Lower-belly upwards, and become themselves almost contiguous to the Back-bone. That a violent Irritation of the Guts determines the Spirits to flow by their Angle of Incidence into the Muscles of the Abdomen, preferable to those of any other Part, seems very probable from the Mechanism of Vomiting, where a violent Irritation of the Stomach, which is of the same Structure, and but one continu'd Substance with the Guts, always determines the Spirits into the Muscles of the Abdomen; and that this Determination is made by an Angle of Incidence, I have endeavour'd to prove in a former Treatise of *Vapours*, from pag. 46. to pag. 61. 2d Edition.

Sharp and
Burning
Pains in the
Belly how
occasion'd.

The *Sharp and Burning Heat in the Belly*, which often accompanies the Cholick, proceeds either from an Inflammation of the Guts, which is so frequent in this Distemper, that (as I have shewn in the foregoing Chapter) 'it seldom or never is without it; or from the Overflowing of the

the Gall into the Guts, whose Acrimonious Salts, irritating and corroding their Coats, cause a Hot and Burning Sensation in them; this latter I take to be the more frequent Cause of that *Heat*; for though the Guts are seldom or never found without an Inflammation, in inveterate Cholicks, it does not thence follow that it must happen at the beginning of it, nor is it likely it does; and yet this Heat in the Belly is frequently felt at the first Invasion of the Cholick. But there are sufficient Grounds to believe that the Gall does for the most part overflow into the Guts, from the very first Onset of this Disease; especially when its Cause resides in the Guts themselves: For either Winds or Morbid Humours irritating them, must make the Spirits to flow with Violence, by the little Nerves of Communication from the Duodenum, into the *Villi Fibrosi* of the Gall-Bladder, whereby they being contracted will squeeze forth the Gall in greater quantity than usual into the *Porus Cholidocus*, whose oblique Insertion into that Gut renders it a Mechanical Necessity, that at every Dilatation succeeding the Contractions of the *Duodenum*, the Mouth of the *Porus Cholidocus* must open, and pour forth into the Guts, what quantity of Gall was contain'd in it.

Explanation of the Symptoms

*Costiveness
from
whence.*

Costiveness proceeds either from the Inflammation of the Guts, or from a preternatural Heat in the Bowels ; by which the Excrements are dry'd and bak'd into hard Balls within the Cells and Cavities of the Colon ; and as these Balls, form'd after the mould of those Cells, are broader in the middle than at each end, they are thereby detain'd by the Orbicular Ligaments of the Colon, with a force Superior to that of the Vermicular Motion of the Guts, which us'd to expel them out of the Body when Liquid or Soft ; and as the fresh Excrements supply'd from the Food, are stop'd by these hard Balls in the Colon, they by the Heat and Evaporation of their Serous Particles do also grow hard, and distend the Skins of the Guts with that Violence, they become incapable of Contraction, and consequently of protruding forth the Excrements by Stools. Another cause of this Constipation is, the Distention of the Guts by Winds, which swelling their Coats violently outwards, very much lessen, or totally hinder that Vermicular Motion of them, by which Stools are occasion'd. *Worms* gather'd into Knots ; large *Stones* in the Guts ; or the Pressure of a Tumour or Excrecence upon any Part of them, may stop the Excrements from descending, and thereby occasion this Constipation.

When

When a Patient afflicted with the Cholick makes but little Water, 'tis because the Colon being adherent to the right Kidney, and ever contiguous, if not adherent also, to the left Kidney, whatever Heat or Inflammation happens to that Gut, is communicated to, or affects the *Plexus Renales*, and Nerves of the Kidneys, whereby the Spirits contain'd in them, being put into a continual and violent Motion, keep the Excretory Sphincters of the many Glands which compose the Kidneys, in one continu'd Contraction, and thereby hinder the Evacuation of the Urine; as we see by daily Experience that the Inflammation of the Womb, (or of the *Prostate* in Venereal Distempers) hinders the Urine already separated in the Bladder, from being freely evacuated.

A Fever is properly described to be a Description violent Commotion and Heat of the Blood, of a Fever. accompanied with an extraordinary Frequency of the Pulse, and a Depravation, or Lesion of the natural Functions of the Body. This may happen to the Cholick from almost any of its Causes.

For all sorts of Crudities, Indigestions, Causes of and Morbid Humours, whether volatile it in the or fix'd, being Heterogeneous (that is of Cholick. a different Nature) to the Blood, may after repeated Circulations and Divisions augment

augment its Ebullition ; Inflammations, Impostumes, Ulcers, or Cancers, may supply Acrimonious Particles to inflame the Blood ; in fine, every thing that causes much Pain may create a *Fever*. For Pain being the Effect of violent Undulations of the Spirits up to the Brain, it follows that they must thence flow in greater quantities into other Parts of the Body, and mixing with the Blood augment its Ebullition ; but when the Cause of Pain is seated in the Lower-Belly, the Spirits are thereby more immediately determin'd into the Liver, whence more frequent Contractions of its Fibres, and a greater Secretion of the Gall into the *Duodenum* than usual and requisite, will ensue. And as an Effusion of too much Gall into the Guts, will by its Irritation occasion new Determinations of the Spirits up to the Brain, from whence they flow again into the Blood ; and will also render the Chyle Acrimonious, both these concur to augment the Fermentation and Ebullition of the Blood, and encrease the Feaver.

*The Mechanism
of the frequency in
the Pulse.*

But how, and by what Mechanism, this extraordinary Fermentation of the Blood causes a preternatural *Frequency in the Pulse*, is what no Body that I know of, has satisfactorily accounted for. *Willis (a)* says that the

(a) *Willis, cap. 3. de Febrib.*

the Blood boiling with Impetuosity is hasten'd forward by a vehement and Quick Pulse, least too great a Quantity of it in the Heart should cause a Suffocation. Which is at most but assigning a final Cause, without explaining the manner how 'tis produc'd; which I account for thus,

The Pulse cannot be more Frequent, but because the Heart squeezes the Blood into the Arteries (and thereby elevates them) at quicker Intervals than usually; the Heart can't effect this, but by its own more frequent Contractions; and the Reason why its Contractions are more short and quick, or frequent, is because the extraordinary Fermentation of the Blood has attenuated and volatiliz'd the Sulphurous Alkaline Recrement, or *Copula Explosiva*, (which, together with the Nitro-aerial Particles of the Spirits, causes the Contractions of the Heart) to that Degree, that it presents itself oftner, enters more easily, and makes its Explosion more quick and sudden, than it us'd to do in the natural Constitution, when the Blood was calm.

Thirst, Restlessness, and Want of Sleep, are Symptoms frequent in the Cholick.

Thirst is a troublesome Sensation of something hot and dry affecting the Palate and Mouth; wherein its Cause is actually seated, Description and true Seat of Thirst.

ted, and not in the Stomach, as *Willis (a)*, and all Authors, I have hitherto met with imagine. In Proof of which 'tis sufficient to alledge, that this Sensation is always referr'd to the Mouth; consequently the Soul, the best Judge of our Senses, knows that to be the Seat of it. Nor is the Reason alledg'd by many Authors, *viz.* That one then finds the greatest Relief from Thirst, when the Water drank is got down into the Stomach, of any Force: For it only proves that the Water being detain'd there, and affecting a large Circumference, induces a more grateful Coldness in the Stomach, (wherein there is also much *Heat*, tho' no *Thirst*) than it does in the Mouth or Throat, thorough which it passes quick, without making any Stay: And if that were allow'd for a good Reason, it might as well be pretend- ed that the *Organ* of *Thirst* is seated in the Hands and Legs, since 'tis Matter of Fact, that by Bathing them a considerable time in Water, you may thereby alleviate *Thirst*; which is ever occasion'd by the Concretion of the Sulphureous Earthy and Saline Parts of the Spittle, which being chrystaliz'd into great *Molecules*, irritate the Nerves of the Mouth and Palate with that

(a) *Willis, cap. 3. de Febrib.*

that particular Sensation of *Heat* and *Dryness* call'd *Thirst*. Now this Perception is incident to the Mouth and Palate, preferable to all other Parts, because besides the Dryness and Heat they partake of equally with the rest of the Body, the hot Air constantly expir'd from the Lungs not only dries these Parts more, but puts the Concreted Salts of the Spittle into a greater Motion, than the like Concreted Salts of other Humours do acquire elsewhere; whereby the Nerves of these Parts are more irritated, and the Perception of Heat and Dryness becomes more intense, and of a different Sensation in the Mouth and Palate, than elsewhere.

When a Feverish Disposition accompa- ^{*Restlessness*}
nies the Cholick, the preternatural Fer- ^{*what, and*}
mentation of the Blood will occasion Di- ^{*how caus'd.*}
stentions of innumerable little Fibres in many different Parts of the Body; whereby the Spirits will be forc'd up to the Brain with some Violence; whence *Small Pains* will ensue, answerable to the Cause, which does not act with extream Violence: and because these Pains are general all over the Body, the Patient not knowing what particular Part to refer them to, turns himself from Side to Side, thereby to find some Ease, which not obtaining, his Mind is troubled at it, and that Uneasiness

ness call'd *Anxiety*, or *Restlessness*, continues upon him.

*Sleep, what,
and whereby
hinder'd.*

As *Sleep* consists in the *Subsiding*, *Unaction*, and *Repose* (a) of those *Animal Spirits*, which flowing from the greater Brain, are the Instruments of Sensations and voluntary Motions, whatsoever hinders that Calm and Quiet in them, will prevent Sleep, and keep the Patient waking. This may happen in the Cholick from many Causes. For the Feverish Disposition and Heat of the Blood, creating a Restless Uneasiness in all Parts of the Body, protrudes the Spirits with a constant and unusual Violence up into the Brain, whereby they are kept in a preternatural disturb'd Motion, opposite to that Quiet and Repose in them necessary to Sleep. But it happens here chiefly, from the sharp Sense of Pain felt in the Cholick, which as it continually forces the Spirits with extream Violence up to the Brain, not only augments their Motion within the Brain itself, but also protrudes them down the Nerves into all the *Organs* of the *Senses*, whereby those *Organs* are kept stretch'd, and capable of receiving the Impressions of outward Objects, which is the same thing, in other Words, as to remain *Awake*.

Sharp,

(a) Willis, *Anatom. Cerebr. cap. xi. & de Anim. Brutor. cap. 16.*

Sharp, Sower, and Bitter Tastes, are not ^{Sower or} permanent and durable Symptoms of the Cholick; but what happen now and then, ^{Bitter Taste} from the belching up of Fumes of different Natures. They are *Sharp*, or *Sow'r*, when the Digestion is vitiated by too great a Quantity of Acids; and *Bitter*, when the Gall overflows into the Stomach: Or, as the Jaundice is an Accident frequent in this Distemper, it may then happen that too great a Quantity of Gall is mix'd with the Spittle, which will occasion a *Bitter Taste* in the Mouth. ^{from} ^{whence.}

Vomiting happens, when either the Gall ^{Vomiting.} overflowing into the Stomach, or the Salts of Crudities and indigested Aliments prick or corrode its Nervous Coat; whereby violent Undulations of the Spirits being made up to the Brain, and from thence by the *Angle of Incidence* into the Diaphragm and Muscles of the Lower-Belly; those Antagonist Muscles (whose Motions us'd to be alternate and successive) are contracted with Violence at one and the same time, and thereby press the Stomach, which lies between them, into a narrow Compass, and forcibly eject what was contain'd in it thro' its superior Orifice, which is dilated at that time by the Contraction of the Diaphragm; whilst the same Contraction, pressing down the Liver upon its lower Orifice, hinders any thing from passing

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passing downwards. The Proof of which Mechanism I have formerly given at large in a Treatise of *Hysterick Fits*, from pag. 46. to pag. 66. *Second Edition.*

Belching.

Belching proceeds from a Rarefaction of the Aliments into Winds; which being press'd from Side to Side by the Contractions of the Muscles of the Abdomen and Diaphragm, and help'd by their own Elasticity, force their Passage where 'tis easiest; and when the Contraction of the Diaphragm opens and dilates the superior Orifice of the Stomach, and by pressing down the Liver shuts the *Pylorus*, then they rush out with a Noise and Violence thro' that upper Orifice into the Throat and Mouth.

Heat and Sharpness of the Urine.

The *Heat and Sharpness of the Urine*, when they happen in the Cholick, are occasion'd by the Inflammation of the Colon, which adhering to the Kidneys, communicates its Heat to them; whereby the Salts of the Urine being exalted, become capable of making violent Impressions upon the Parts, thro' which it passes. As we see it constantly happens in *Gonorrhæas*, where the Inflammations of the *Prostate*, or of the Seminary Vesicles, imparting their Heat to the Urine in the Bladder, make it sharp and scalding.

A *Beating in the Belly*, like to a strong Pulse, whether painful or not, is always occasion'd by an Aneurisme, or extraordinary Dilatation of the Great or *Cæliack* Arteries, whence the Pulsation, or successive Elevation of those Arteries is so strong, as to be sensibly perceiv'd: For, tho' I know that the Obstruction or Dilatation of smaller Arteries, may and do often occasion the like Beating in outward Parts; yet I am of Opinion, that none, but these Great Arteries, are capable, from any Causes of making their Motion, be felt thro' so many Parts, and the thick Muscles of the *Abdomen*.

The Pain frequently felt in the *Loins*, is occasion'd by a violent Distention of the Muscles of the *Abdomen*, whose Tendons, which are their most sensible Parts, being affix'd to the *Vertebra* of the Back-bone, in that place we call the *Loins*, or Small of the Back, hence it is the Pain is felt there: And the Difficulty the Patient finds, to stoop or bend forwards at that time, arises from the greater Distention of those Muscles by endeavouring it, whereby the Pain is encreas'd. This Pain is referr'd to neither Side in particular, but to the whole *Loins*, or Small of the Back in general, because the same Number of Tendons are affixt to the *Vertebra* on each Side, and being all equally stretch'd, are

A Beating in the Belly like to a strong Pulse.

Pains in the Loins, from whence.

Explanation of the Symptoms

*Pains in the
Hypocon-
dria.*

consequently equally affected with the Pain. When Pains are felt in the Right or Left *Hypocondria* (or Cavities under the Short Ribs) they proceed from other Causes. That in the Right *Hypocondrium* from an Inflammation, or the Irritation of any Bowel or Part of the Guts situated there, or from the Distention, Pressure, or Weight of the Liver. That in the Left *Hypocondrium*, from the like Inflammations or Irritations on that Side, or from the Distention, Pressure, or Weight of the Spleen. If I here make a Digression by way of Enquiry into the Use of this Bowel hitherto unknown, it can't be thought foreign to my present Subject; since the Cholick, as I have already shewn, is often occasion'd by its Vices and Alterations.

*A Digressi-
on the Use
of the
Spleen.*

*A Descrip-
tion of the
Parts and
Structure of
the Spleen.*

The *Spleen* is a soft *Spungy Viscus*, of a dark red or blueish Colour, about six Inches long, three broad, and one thick; situated in the Left Side, between the Spurious or short Ribs, and the Stomach; adhering to the Stomach, the left Kidney, and the *Diaphragm*; externally cover'd with two Membranes or Skins, internally divided into a vast Number of Cells or Cavities, communicating like to a Honey-comb with one another, into which the Ramifications of the Splenetick Artery terminate, and pour forth the Blood.

Blood. The Insides of these Cells are furnish'd with many little *white Glands*, to every one of which a capillary Artery is distributed; there is a multitude of strong Fibres, which cross the interiour Substance of the Spleen from Side to Side; some of which reach from its outward Membrane to the Cells; others are subdivided from Fibre to Fibre, or from Fibre to Cell, and some run only from Cell to Cell. These serve as Beams, and Iron Cramps do in a House, to strengthen its Fabrick; and it is thereby made capable of Contraction, as its exterior Membrane is of Dilatation. There is a manifest *Anastomosis*, or immediate Communication between the Veins and Arteries, in this Bowel. Its venous Ducts are beyond Comparison larger and more capacious than its Arterial ones. It is always fill'd with a greater Quantity of Blood, than any other Part of the Body, which is concreted into such a Jelly, that at first Sight it imposes upon the Eyes for a Fleshy Substance, tho' by a small Agitation it may soon be reduc'd to Fluidity. It does not receive this Blood into capillary Veins, which by their Union form many Branches, and at last terminate into the *Ramus Splenicus*, but by a Structure and Mechanism peculiar to it self, its Cells terminate in one short and large Vein; from whence all the Blood is convey'd by

the Splenick Branch into the *Vena Porta*, and thence into the Liver. It is moreover remarkable that the *Lymphaducts* range only within its exterior Membranes, but do not penetrate into its Substance; that the Spleen has many more Nerves in proportion than any other Part of the Body, which are larger, the nearer they approach to, and for some Space within its Substance; that its Veins and Arteries have more Coats than those belonging to other Parts; and that the Splenick Vein comes forth, close to the same Place where its Artery enter'd: so that the Blood is not carried in a progressive Motion from one End of this Bowel out at the other End of it; but all of it returns back again, to be carried off at almost the same Point it enter'd in.

*Uses of the
Spleen.*

From this exact and particular Description of the Spleen, I shall endeavour to account for its Uses, which I take to be these: *1st*, To give a Consistence to the Blood, thereby to preserve it from that Dissolution, Disunion, and speedy Destruction, which a constant Division, and uninterrupted Fermentation soon induces; as we see it daily happens in continual and Hectick Fevers: *2dly*, To dispose the Blood, by that Consistence of it, for the Separation of the Gall in the Liver: and perchance, *3dly*, To serve as a Receptacle,

cle, or retiring Place to part of the Blood in all violent Motions and Contractions, whereby it might otherways burst the Blood-vessels.

That the Motion of the Blood is less'd, and it acquires some Consistence in the Spleen, is very probable, if not clearly evident, from the following Matters of Fact (and Matters of Fact are what I love always to reason after, and to draw my Consequences from, where possible; being satisfied 'tis the readiest Way to Truth, and to what Certainty of Knowledge Humane Nature is capable of). First then by Dissections we always find the Blood in the Spleen more concreted than that of any other Part, and form'd into such a Jelly, it resembles one entire piece of Flesh. 2dly, This Blood is of a darker Colour than any other in the whole Body; which is known to be a certain Consequence of a Diminution of Motion in Liquids. 3dly, The whole Structure of the Spleen seems manifestly dispos'd and contriv'd to produce this Effect. For as Waters, when they flow out of narrow Channels, into Lakes or wider Beds, run with less Rapidity; so the Blood convey'd into the Spleen, flowing from the little arborous Ramifications of the Spleenick Artery, into large Cells and Cavities, must necessarily subside within it

Proofs that the Spleen gives a greater Consistence to the Blood.

White
Glands
within the
Cells of the
Spleen; their
Use and the
Nature of
their Re-
crement.

Experi-
ments pro-
ving the A-
cidity of this
Recrement.

self, and abate of its Motion. Add to this, that there is a fix'd acid Recrement continually separated into this Blood, from the many *White Glands* plac'd within these Cells, whose Nature it is to coagulate Sulphurous Liquors, and consequently the Blood. That something is separated thro' these Glands is plain, because Nature makes nothing in vain, and little capillary Arteries are visibly distributed to every one of them; consequently they are design'd, as all other Glands, for the Separation of some Recrement out of that Blood which is carried to them. And that this Recrement is of a fix'd acid Nature, will appear, from its *Effects* and *Taste*. For tho', as *Glisson* observes, the Blood itself in the Spleen does not taste acid; yet, if when the Blood is drain'd out of it, its glandulous Vesicles are apply'd to the Tongue, an acid Taste will easily be perceiv'd: Likewise from its *Effects*, because if you mix new Milk with the Recrement squeezed out of these Glands, a *Coagulum* will thence arise; and if you inject a Laver of Soap into a Spleen almost cleans'd of its Blood, you shall sooner burst its Cells than force it to pass, tho' Water will at the same time pass freely thro' it: The Reason of which I take to be, that the fix'd Acids of this Recrement, join'd to the Sulphurous and Saline Particles of the Soap,

Soap, form a Vitriolick Salt, which contracts the Fibres, and closes up the Cells of the Spleen. As I have not yet had the Opportunity of making this last Experiment upon more than two Human Bodies, (tho' in both of them I observ'd what I here mention) therefore I won't affirm it for a Fact sufficiently grounded; tho' I believe it true, and what will constantly happen. But the acid Taste of this Recrement, and its coagulating of Milk, are undoubted, both from my own Experiments, and those of *Malpighius* (a), which without the other are sufficient to prove its Acidity.

A further Proof of this Consistence, which the Spleen gives not only to the Blood in the Liver, but also to the whole Mass, is drawn from the Experiments I have often made of cutting the Spleen out of Dogs; after which they constantly became more lively, brisk and active, more ravenous, ran more after Bitches, and piss'd more frequently; all which clearly evince a greater, livelier, and brisker Fermentation in the Blood, consequently that it fermented less whilst the Spleen perform'd its natural Function. Whence I conclude, that one Use of the Spleen, is to abate and

G 4

lessen

(a) *Malpighius, Tract. de Liene.*

Explanation of the Symptoms

lessen the intestine Motion or Fermentation of the Blood; the final End of which probably is, thereby to preserve its Vigour, and prolong the Life of the Animal. I formerly cut the Spleens from several Dogs, to try if I could thence make any Observations to corroborate this Conjecture; but the Remarks I made were too few, and too uncertain to be mentioned, tho' they serv'd to confirm me more in the same Opinion. This I take Notice of, only to put others (who have the Curiosity and Leisure) upon the same Experiment; whereby if they constantly find, that those Dogs are more brisk and ravenous for the first Months, and afterwards pine and waste to Death much sooner than is natural, (as it happen'd to some of those I made the Experiment on) they may thence conclude, that, as 'tis evident the Want of the Spleen occasions a greater Fermentation in the Blood, so that Fermentation always does, (as it now seems both reasonable and probable) advance the entire Dissolution of it, by the uninterrupted Division of its Salts; and thereby shortens Life. Note that those who make this Experiment, ought, (which I omitted) to shut up these Dogs from Bitches, because their running so much after them, may otherways occasion, at least in Part, that Decay, which I imagine will prove

a constant Consequence of the sole augmented and uninterrupted Fermentation of the Blood, which is what we endeavour to be satisfy'd of by the Repetitions of this Experiment.

The 2d Use I ascrib'd to the Spleen was to prepare and dispose the Blood for the Separation of the Gall in the Liver. And as we see in Chymical Operations, that *Precipitation* is the Method by which Art makes a Separation of Particles to form Acrimonious Salts; so it is not unlikely that Nature makes a *Precipitation* from the Blood in the Spleen, thereby to form those Acrimonious Salts of the Gall, which are afterwards separated in the Liver. To an artificial *Precipitation* three things are requir'd; 1st, that the Salts obtain a sufficient Dissolution, by a proper *Menstruum*; 2^{dly}, that this Dissolution be contain'd in a large Vessel or Recipient. (Chymists always make use of such a one, as has its only Orifice in its Superiour Part.) 3^{dly}, that a Dissolution of some fixt Acid Salts be pour'd upon it; from whence arises, a Fermentation in some Liquors, but in most a *Coagulum*, by which the *Precipitation* is made, and an acrimonious Salt separated. Now is there not a sufficient Dissolution made of the Salts of the Blood, by its natural Fermentation? Is not the Spleen a capacious Vessel or Recipient, almost of the

That the Spleen prepares the Blood for the Separation of the Gall.

That the Method of its doing it is by Precipitation.

the very form Chymists would chuse, with both its Orifices implanted together in its Superiour part, and no Passage at the bottom or else-where; whereby it seems purposely contriv'd to detain the Contents, and allow time for the Salts to subside? is there not a fixt Acid separated from the inner Glands of its Cells? don't we observe the Blood in it to be of a dark colour, and coagulated almost to a Jelly? and we certainly know that an Acrimonious Salt is soon after separated from this same Blood, and carry'd immediately into the Liver. Why then may not we with some reason conjecture, when so many things are Simular, that Nature effects a *Precipitation* here, much after the same manner as Art does elsewhere? But let us fix upon some one Artificial *Precipitation*, and see how near we can bring the Parallel of it, to what happens in the Spleen.

*Comparison
of Artificial
Precipitations,
to
a natural
one suppos'd
to be made
in the Spleen.*

I take, for example, a quantity of *Salt of Saturn* sufficiently dissolv'd, which I put into a large Recipient or Vessel, then I pour *Oyl of Tartar per deliquium* drop by drop upon it, whereby a *Coagulum* is soon induced in the Liquor; and by giving it time to repose and subside, a White Powder is precipitated, or sinks to the bottom. After which, by shaking it, I remix those precipitated Salts with the Liquor; then filtrate it through a brown Paper; where-
by

by the Liquor passes clear, and the Precipitated Salts remain upon the Filtre. Nature seems to act almost step by step after the same manner, when she conveys so much Blood, (in which there is undoubtedly a great quantity of Salts sufficiently dissolv'd) into the blind Recipient or Cavity of the Spleen; where the fixt Acid Recrement of its Glands, instilling drop by drop, like my *Oil of Tartar*, upon it, induces a Coagulum in this Blood, apparent by Dissections to the Eye. The Structure of this Bowel, (wherein the Blood flows out of narrow Channels into much larger Cavities, and has thence no way of Reconveyance, but up thro' a small Orifice plac'd in its superiour Part) is contriv'd for that Delay and Repose of the Blood in this Vessel, which is necessary to its subsiding, and the Precipitation of its Salts; and the Contraction of the Transverse Fibres succeeding the Repletion and Distention of the Spleen; its Pressure against the Ribs made by the Guts and Bowels of the Lower-Belly, in the Motions of Expiration (the Mechanism by which Nature helps this languid Blood to reascend into the Splenick Vein); together with the affusion of a more Active and Spirituous Blood upon it, in the *Vena Porta*, from its right Branch; must inevitably exagitate it, and thereby probably occasion

occasion that remixture of its Precipitated Salts, which I effected in the Precipitated Dissolution of *Saturn*, by shaking it. Though 'tis to be observ'd, that the Agitation or Remixture of the Precipitated Salts is not necessary to all Artificial Precipitations, many of which are made without it, consequently may not be requisite to this natural one. From the *Vena Porta* this Blood flows into the Liver, whose Glands perform the Office of a Filtre, by separating the Precipitated Acrimonious Salts, which are afterwards sent off into the Gall-Bladder and Gall-Ducts, whilst the rest of the Blood passes on in a free course, through the Veins into other Parts, as the Watry Parts of the precipitated Dissolution of *Saturn* did through the Brown Paper.

There is another sort of *Artificial Precipitation*, wherein 'tis necessary to add to Twenty Parts of fix'd Acids, one Part of Volatile Salts: For Example, in making the *White Precipitate of Mercury*, we add half an Ounce of the Volatil Spirit of *Salt Armoniack*, to a Dissolution of Ten Ounces of *Marine Salt* pour'd upon the *Mercury*. And if you require the like Volatile mixture in this natural *Precipitation*, you may very rationally suppose it to be supply'd, either from that more active Spirituous Blood, which flowing
from

from the Right Branch of the *Vena Porta*, is incorporated with this Blood before it enters into the Liver ; or from the Spirits (as the Spleen has considerably more Nerves in proportion than any other Part) supply'd to and mixt with it, in greater quantity.

From what has been said, I am of Opinion, with submission to better Judgments, that the hitherto unknown use of the Spleen, is to interrupt the Fermentation of the Blood ; and to effect a Precipitation of its Salts ; by the former to prolong Life, by the latter to prepare the Acrimonious Particles of the Gall, for their Separation in the Liver. I was led into these Thoughts by various Experiments, and a serious Attention to the whole Structure of the Spleen, every way dispos'd to these Ends ; which induce me to believe that the long deviated Course of the Splenick Artery (whose Diameter is also much larger than that of the right branch of the *Cæliack*) was contriv'd to abate and lessen the Motion of the Blood in its conveyance to the Spleen; where its Effusion into a large Cavity dispos'd into many Cells, does by a Mechanical necessity lessen that Motion considerably more; and the subsequent mixture of the fix'd Acid Recrement from the Glands plac'd within these Cells soon Coagulates it :
By

By which, and the requisite Delay or Repose contriv'd for it in the Cavity of the Spleen, the Precipitation of Acrimonious Salts from the Blood is effected: Which being carry'd thence, immediately into the Liver, are there Filtrated through its Glands, and form the Gall. Whosoever will be pleas'd to compare this *Hypothesis* with the many different ones of the under-cited Authors (a) (who are all I have hitherto read on this Subject) may thence judge, which seems to him best grounded upon Reason and Experience. To me, no one of theirs is in the least Satisfactory; nor is my own so clear and evident, as to make me flatter my self, I have fully demonstrated the true Use of this Part; yet it appears both probable, and is what I hope to illustrate more and more by future Experiments.

*A 3d Use
of the Spleen
dubiously
asserted.*

A third Use of the Spleen, is, in the Opinion of a very learned Man, to serve for a *Receptacle*, or *Retiring Place* to part of the Blood in all violent Motions; thereby to prevent the Rupture of the Blood-Vessels.

(a) Hippocrates. Plato. Aristoteles. Galen. Aretaus. Aphrodisaus. Archangelus. Varolius. Piso. Veslingius. Reusnerus. Posthius. Ulmus. Jessenus. Acmilus. Parisanus. Baubinus. Sennertus. Conringius. Spigelius. Reusnerus. Hoffmannus. Walaeus. Helmontius. Dela Chambre. Grembsius. Higmerus. Denfingius. Glissonius. Malpighius.

Vessels. For as in violent Contractions the Blood is press'd from the outward, into the inward Parts, and the Spleen is a capacious Vessel, whose Cavity may be fill'd, and its Skins stretch'd and distended without any Prejudice to it self or hurt to any adjoining Parts, it probably receives more Blood at that time than usually, because after violent Exercises we always feel a *Tensive Pain* in the Left-side, just where the Spleen is seated; which undoubtedly proceeds from the Distention of its Membranes. But I neither take this Use to be solely answerable to the Dignity of so principal a Part; nor do I believe that those, who shall think it worth their while to make the Calculation, will find that the small quantity of Blood what it can receive over and above it usually contains (being ever found full) can suffice to prevent the Rupture of any Blood-Vessels in distant Parts of the Body, whatever it may possibly do in those immediately adjoining. And the painful Distention of this Bowel, after violent Exercises, may as probably proceed from the Rarefaction of the Blood, as from the Repletion of the Spleen, by a greater quantity of it.

A *Chilness*, or Sensation of Cold when it happens in the Cholick, proceeds from Irritations made by fix'd Acids, much in the

From whence the Sensation of Cold in the Cholick.

the same manner as 'tis produc'd in cold Fits of *Agues*; but when it seems as if a Cold Iron were run through the Belly, that arises from a great quantity of fix'd Acids mingled with the Chyle; which flowing through the *Vena Lactea* into the *Pancreas Afellii*, and thence by the *Secondary Lactals* to the *Ductus Chyliferus*, irritates the Fibres of their inward Skins, with a Sensation not unlike to what we feel from the Application of cold Iron to any outward Part; and this Coldness being Progressive, as the Motion of the Chyle advances through the Mesentery, induces the Idea of a cold Substance moving through the Belly.

Cold Sweats Cold Sweats are occasioned, by a deficiency of the Spirits in the Excretory Sphincters of the Military Glands; whereby that Serous Humour, which us'd to evaporate by Insensible Perspiration, finds a wider Passage, and flows out in large Drops upon the Surface of the Skin.

Giddiness. Giddiness is also occasion'd by a like Deficiency of the Spirits in the Emporium of the Brain, as I have more fully explain'd it, in a *Treatise of Vapours*, from Pag. 76, to Pag. 83. 2d Edition. And as this Deficiency of the Spirits will arise from any Cause that Coagulates the Blood, or considerably lessens its Fermentation, it will be frequent in those Cholicks that are produc'd

produc'd by Indigestions, abounding with fix'd Acids; which from the latter Cause will occasion a Coldness and Paleness; from the former, Fainting Fits, or a Syncope. For as the Heat of the Body, and the Red Colour of the Face, proceeds from the lively Fermentation of the Blood, whatsoever considerably lessens that in the whole Mass, will lessen it much more in the extream Parts which are farthest from the Heart; whereby being depriv'd of their usual Heat, they feel Cold. A *Paleness* will likewise ensue, because there not being a Fermentation in the Blood *Paleness.* sufficient to form, dispense, and spread in the Pores of the Cheeks, the usual quantity of Red Globules (by which the Rays of Light were Reflected with that Modification, which produc'd in the Eye the Perception of *Redness*) they lose their florid Colour, and become Pale and Wan. But when these Acids thicken and coagulate the Blood to that Degree, that its Circulation in the Lungs, and through the left Ventricle of the Heart is intercepted, then *Fainting Fits*, or a *Syncope*, *Syncope or Fainting Fits.* that is a Cessation of the Pulse and Breathing for a short time, will ensue.

Convulsions are occasion'd by a mixture *Convulsions* of Heterogeneous Particles with the Spirits, or with the *Copula Explosiva* separated in the Pores of the Muscular Fibres; H whereby

whereby their Explosion becomes more violent and irregular: The latter of which Causes I take to be the most frequent. The Mechanism, by which the Muscles are contracted, and Convulsions caus'd, is deliver'd in the above-mention'd Book of *Vapours*, from *Pag. 104*, to *Pag. 106. Second Edition.*

Faundice.

As the *Faundice* proceeds from the mixture of much Gall with the Blood and its Recrements; especially with that of the *Corpus Mucosum*, and the Humour, which nourishes the *Conjunctive Tunick* of the Eye; 'tis no wonder it should be frequent in the Cholick, where the Gall generally overflows in such quantity into the Guts, and is thence carry'd into the Blood, and all Parts of the Body.

How the Navel-String is drawn inwards or swell'd outwards.

When the *Navel-String*, and a small circumference round it, is drawn inwards; that is occasion'd either by Humours which stretch and distend its Cavity, whereby as it swells in breadth, it is shorten'd in length, and draws that Circumference of all the Muscles and Skins inward, to which its Insertion is made. Or else that the casual Pressure, and weight of some inward Part upon it, bends it with violence; and thereby draws that whole Circumference inwards, to which it is affix'd. What Swells it outwards can be nothing but Winds, or watry Humours filling

filling its Cavity, and press'd outwards by the Guts.

When great quantities of *Green* or *Yellow* Matters are voided by Stools, without any Ease or Relief from it; the Cause of those frequent Stools is the continual Irritation of the Guts by Sharp Humours; whereby their Contraction or *Peristaltick* Motion is considerably quicken'd, and the Expulsion of the Excrements render'd more frequent. The Greenness or Yellowness of these Excrements, proceeds from a large mixture of the Gall with them, generally overflowing into the Guts in this Distemper, both which Colours are natural to it. They find no Ease by these Stools, because this Species of the Cholick is not occasion'd by any Vice in the Chyle or Excrements; but by sharp corrosive Humours impacted to, or imbib'd in the Coats of the Guts, where they continue obstinately fix'd.

When the *Excrements* are, as it sometimes happens in the Cholick, *Porous* *Light*, and *resembling Cow-Dung*; I take this to be occasion'd by a preternatural quick and violent Fermentation of the Chyle in the Stomach and Guts, whereby its Salts, (which are what give Weight to mixt Bodies) immediately acquire the smallest Division, and enter with the Serous Particles into the Lacteal Veins,

From whence Green or Yellow Stools in the Cholick.

How the Excrements become Porous and Light.

Explanation of the Symptoms

without making any considerable disruption of the Sulphureous Filaments of the Food ; which Sulphureous Filaments, together with the Earthy Particles, form a Porous Substance or Excrement, not unlike to the *Caput Mortuum* remaining after Chymical Operations.

*Whence the
Lowness of
the Pulse.*

The last Symptom to be explain'd is the *Lowness of the Pulse*, common, tho' not constant, in this Distemper. This is occasion'd by the preternatural Thickness of the Blood, induc'd by the fix'd Acids of the indigested Chyle. For the Blood cannot acquire a greater Consistence, but that its Fermentation must be considerably lessen'd ; its Fermentation cannot be considerably lessen'd, but that fewer Animal Spirits will be form'd, and a less quantity of the *Copula Explosiva* separated in the Fibres of the Heart ; the *Copula Explosiva* and the Spirits being supply'd but in a small quantity to the Heart, can make but a weak Contraction or Explosion in its Muscles ; the Contraction being weak, can squeeze forth but a small quantity of Blood receiv'd into the Arteries ; the quantity of Blood receiv'd into the Arteries being but small, and fermenting but little, can occasion but a very inconsiderable Distention, or Elevation in them ; whence their *Vibration* or *Beating* is scarce perceptible,

tible, which is what we call a *Lowness in the Pulse*.

But how the same Cause should occasion violent *Hot Pains* in the Lower-Belly, and at the same time a *Lowness in the Pulse*, and *Chilness* or cold Sensation in the *Extremities*, is what requires some Thought to account for. Which Symptoms I take to be produc'd thus. The first Action of the indigested Chyle abounding with fix'd Acids, is an Irritation of the Guts, by which Irritation, both violent Pains, and the Overflowing of the Gall into them, are occasion'd. After which part of the fix'd Acids penetrate into the Glands of the Guts, which they obstruct, and Coagulate its Recrement; this coagulated Recrement rises after some time into a violent Fermentation, from the Heat of the Blood in the adjacent Parts, and thereby causes Inflammations; which are encreas'd by the great quantity of Gall overflowing into the Guts; from hence the *Heat in the Belly*. But as the greatest part of this indigested Acid Chyle, continuing its course, is carry'd through the Lacteal Vessels, into the Blood, that thickens the whole Mass, and by thickening of it occasions a *Lowness of the Pulse*, and a *Chilness* or Cold Sensation in the *Extream Parts*; after the manner just above explain'd.

H 3

Having

Having thus mechanically accounted for all the Symptoms and Accidents of the Cholick, I shall in the next Chapter proceed to its *Diagnosticks*; and deliver those Signs and Tokens, by which both the Physician and the Patient may discern, from which of so many different Causes any Fit of the Cholick proceeds.

C H A P.

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C H A P. III.

The Diagnosticks of the Cholick.

A Cholick proceeding from *Indigestions* ^{Signs by which the Cholick is known to proceed from} and *Crudities*, (taking the words in a general Sense) is known by the Grumbling of the Guts, frequent Belching, and Breaking of Wind backwards, by a Looseness; or that the Patient has taken Cold, or eat too much, or Aliments of hard Digestion.

When the *Indigestions* are of a *Sower and Acid Nature*; that is known by the Constitution of the Patient, by the Coldness ^{From Acid or sower Humours.} of the extream Parts, the Concentration and Lowness of the Pulse; by a sleepy Disposition, and Heaviness in all Parts of the Body; by the Sharp and Sower Taste of what he Vomits; or from his having eat great quantities of Green Fruits, drunk green Wines, Cyder, or Sower Liquors.

The Cholick is known to proceed from ^{From Winds.} *Winds*, when the Belly is stretch'd and Swell'd; the Guts grumble; the Patient breaks much Wind upwards and downwards, and finds Ease thereby; also when

the Pain moves in an instant from one Place to another. These Winds are distinguish'd to proceed from a *slow Fermentation of the Crudities*, when the above-mentioned Signs of Sharpness and Sowerness in them are present, and the Swelling of the Belly is without the Sense of Heat. And from a *quick and violent Fermentation* in them, when the Swelling of the Belly is sudden, and accompanied with a preternatural Heat.

From the Retention and Hardness of the Excrements.

The Cholick is known to be occasion'd by the *Retention and Hardness of the Excrements*; from the Constitution of the Patient, who is generally hard bound, and goes naturally but once in three or four days to Stool; from his not having been at Stool of a long while; from the hardness of the Colon which may be felt outwardly; and that Astringent Remedies, violent Exercises, long Voyages at Sea, much Riding, or a Sedentary Life have preceded.

Whereby known to be occasion'd by sharp or sower Humours discharg'd from the Blood.

Sharp and Sower Humours discharg'd from the Blood, upon the Stomach, Guts, or other Parts within the Lower-Belly, may be guess'd at to be the Causes of the Cholick; from the Constitution of the Patient, from the manner of the painful Irritation; and the above-given Signs of Sharpness in the Humours; when there are no grounds to attribute the Cholick

Cholick to Indigestions, or to the Overflowing of the Gall; but chiefly when frequent Purges and Glysters give no Ease, but the Pain continues violent and obstinate.

Corrosive Humours discharg'd in the like ^{By Corro-} manner ^{from the Blood,} are conjectur'd ^{to be the Cause,} from the Constitution of ^{the Patient;} from the Hot Corroding ^{Sense of Pain;} its Obstinacy to be remov'd; and the absence of other Causes; that the Excrements are not ting'd with Gall; that Purges and Clysters don't alleviate it; that the Urine is scalding, and that Hot things augment the Pain, as *Galen* (a) observed; that the Stools are hot and painful; and that there is a Thirst, Restlessness, and Feverish Disposition.

The *Humours* of the Gout, Scurvy, Rheumatism, Venereal Distempers, &c. may be ^{By the Hu-} judg'd to be translated ^{mours of the} from other Parts ^{Gout, Scur-} up ^{vy, Rheu-} on the Guts to occasion the Cholick; ^{matism, &c.} when upon the disappearance of a Swelling, or the Cessation of a Pain in other Parts, the Cholick immediately succeeds to a Person troubled with any of these Distempers; according to the Remark of *Hippocrates*, *Epid. 3. Ille in Colon dolebat, Superveniente Arthritide melius habebat. & c. contrà.*

The

(a) *Galen lib. 1. de loc. affect.*

By the
Overflow-
ing of the
Gall.

The Overflowing of the Gall into the Guts, may be suppos'd to happen, and be reckon'd as a *conjoint Cause* of the Cholick, whenever violent Irritations are felt in the Guts themselves; whereby a greater quantity of Gall will be always separated into them, as has been above explain'd. It may be guess'd to be the *sole Cause* of it, from the Bilious Constitution of the Patient, the Heat of the Bowels not fix'd to any one Part; from the Fever, Thirst, Restlessness, Bitter Taste, Yellowness of the Urine, the Jaundice, Vomiting of Bilious Humours; and from what has preceded, as his having drunk great quantities of hot Liquors, eaten much spic'd or hot Meats, being put into Passion, or being subject to, if not actually affected with, the Jaundice.

By *Atrabile*. That it is occasion'd by the change of the Gall into what Physicians call *Atrabile*, may be gather'd, (supposing the absence of other Causes) from the deep Melancholy Constitution of the Patient, from foregoing Accidents, as Passion, excessive Grief or Melancholy; but chiefly from the burning Heat in the Belly, whilst the extream Parts are Cold; by the hot dry Taste of what he Vomits; by the Lowness and Concentration of the Pulse, and that a Cadaverous Aspect or *Facies Hippocratica* comes on a sudden.

That

That it proceeds from the Gall's being *By the Im-*
 imbib'd into the Coats of the Guts or Sto- *bibing of*
 mach, can be gather'd only from the long *the Gall in-*
 continuance and obstinacy of the Distem- *to fleshy*
 per, which finds no relief from Purges *Parts.*
 nor Clysters; has no appearance of any
 other Cause, but the Heat and Symptoms
 of the Gall's overflowing; and that the
 Patient makes frequent and extraordinary
 efforts to Vomit, or to go to Stool, but
 voids little or nothing.

Ruptures are apparent to the Eye; and *By Rup-*
 the *Compression of Inward Parts* of the Bel- *tures or*
 ly by Tumours, Schirrus's, or Stones, *Compressi-*
 may be guess'd at by the particular Sen- *ons.*
 sation of the Pain; and the presence of any
 one of these Causes.

The *Rupture or Relaxation of the Liga-* *By the Rup-*
ments of the Womb, are known by its *tures, or*
 Descent. Those of the Liver or Spleen *the Relax-*
 seldom happen, and are scarce possible to be *ations of*
 discover'd till after Death. *Ligaments.*

When the Cholick is occasion'd by an *By Inflam-*
Inflammation, it may be discover'd by these *mations.*
 Observations; that a hot Pain, not distinct-
 ly settled at first, is afterwards pertinaci-
 ously fix'd to a Point, with a much more
 hot, sharp, and burning Sensation, with a
 greater Constipation, no breaking of
 Wind, a Suppression or but little Evacuati-
 on of Urine, Thirst, Restlessness, and a
 Fever; but above all with a Dolorifick
 Tension.

Tension either in the whole Belly or part of it, and such an exquisite Pain, that the least pression or weight is intolerable.

'Tis known to proceed from the Inflammation of the Stomach.

If the *Inflammation be in the Stomach*, besides the hot burning Pain in *Scorbi-culo Cordis*, Thirst, and Restlessness, the Heart-burn, continual or frequent Vomitings or the Hickup will happen; Liquors drunk warm will feel cool in the Stomach, and a Fever ensue, in which the Extremities will be cold.

From the Inflammation of the Liver.

The *Inflammation of the Liver*, as well as those of the Spleen and Stomach, does, from a simular Sense of Pain, often impose upon the Patient and Physician for the Cholick; under which denomination it generally, and not improperly passes, till the Symptoms rising to a height, manifestly denote the true Cause. In which interval, tho' it be difficult to distinguish it from a Cholick proceeding from other Causes, yet it may be guess'd at by these Signs: 1st, That a Hot Pain accompany'd with a Feverish Disposition is seated on the right side only, where, by running your Finger under the Short Ribs, so as to press the Liver, a more exquisite Sense of it arises. 2^{dly}, That the Patient lies with more ease on his Back, than on either side. 3^{dly}, That he feels some difficulty in Breathing, which he takes to be the beginning of a Pleuresie on the right side.

side. 4thly, That most of the Inflammations of the Liver will end in the Jaundice. The Cholical Pains preceding the Inflammation of the Spleen, are conjectur'd at, by the same Signs affecting that Part of the Left side, where the Spleen is seated. But as the Spleen is not endowed with an exquisite Sense of feeling, the Pain is commonly dull and obtuse.

Or of the Spleen.

Tho' we know that *Imposthumes* often succeed Inflammations, yet they are no otherways to be distinguish'd in the inward Parts of the Lower-Belly, than by the Cessation of that Heat and Pain, which an Inflammation of long continuance had occasion'd; except in the Stomach, wherein they may be discover'd by the Vomiting up of Corruption; and sometimes in the Guts, from the voiding of it by Stool. *Ex diuturno partium quæ ad Ventrem attinent dolore, Suppuratio.* Hippocrat. Sect.

From Imposthumes.

7. Aphor. 22.

Inward Ulcers of the Lower-belly are very difficult to be distinguish'd from other Causes, and can only be guess'd at by the sharp gnawing Pain; but *Inward Cancers* are more easily known by a shooting Pain in the Part.

From Ulcers.

From Cancers.

The Collection of watry Humours; great Swellings or Tumours in the Peritoneum, Caul, Mesentery or Womb, are known by the permanent Distention of the whole Belly:

From Swelling and Tumours.

Belly: but those of other inward Parts are scarce possible to be guess'd at, except the Tumours and Schirrus's of the Liver and Spleen, which may be felt Outwardly.

*From Cal-
losities, Gra-
vel or Stones* Callosities, Gravel, or Stones, in the Pancreas, Stomach, Liver, or Guts, tho' often found in those Parts by Dissections, are scarce possible to be distinguish'd in Living Bodies; nor doth it much import, since 'tis beyond the Power of Art to remove them. But Stones in the

*From Stones
in the Gall-
bladder.* Gall-bladder, if large or sharp-pointed, are known by a fixt Pain on the right Side, just between the Navel and the Short Ribs; that if any Stones are voided by Stool, they are either Yellow or Green, or at least give a Tincture of those Colours to the Water they are wash'd in; and that when this Pain has hung long upon the Patient, the Jaundice ensues.

*From Vitre-
ous Pitui-
tous Hu-
mours.* Vitreous, Pituitous Humours adhering to the Guts, may be then guess'd to be the Cause of the Cholick; when the Pain has not the Sensation of Heat, when the Patient is of a Scrophulous Disposition, and is much bound; when he has Stools by Art or Nature, then voids Vitreous, Pituitous, Glewy Matters.

*From the
Obstructions
and Swel-
lings in the
Glands of
the Guts.* It is a difficult matter to find out, and know for certain when the Cholick is produc'd by Obstructions and Tumours in the Glands of the Guts; but if a fixt Pain of long

long Continuance, and of no very hot Nature, is deeply seated in the inward Parts of the Belly, and the Patient be of a Scrophulous Disposition, or afflicted with the King's-Evil, and that Purges and Clysters bring no Relief; these with the Absence of other Causes, will give Grounds to believe it arises from this.

When the Cholick removes suddenly, ^{Signs by which the Cholick is known to reside in the Guts.} or frequently, from one Place to another, 'tis a certain Sign, that the Cause, whether it be Winds, morbid Humours, or the Overflowing of the Gall, resides in the Guts themselves.

When a Pain of the Cholick is seated ^{In the Peritonæum, or in the Caul, 'tis distinguished to lie in them, because the Pain is felt outward in the Fore-part of the Belly, and is not very violent: Dolo- res qui ad ventrem fiunt, sublimes quidem leviores, non sublimes verò vehementiores.} Hippoc. Sect. 6. Aphor. 7.

When the Cholick is in the Stomach, ^{In the Stomach.} all the Violence of the Pain lies above the Navel, none below it; and it sometimes reaches up to the Back-bone, and between the Shoulders: Belching and Vomiting are frequent, and the Patients are eas'd by them; the Heart-burn and Hiccup often happen; and they find more immediate and present Relief by proper Remedies taken by the Mouth, than when the

the Cause lies in the Guts, or in any other Parts of the Lower-belly.

*In the
Womb.*

Cholical Pains are distinguish'd to proceed from, and reside in the *Womb*, when the Pain is extended to both the Hips, and does not ascend higher; when Hard Labours, or great Floodings have preceded; when the Monthly Courses are obstructed, or that the Time of their coming down approaches, or that they flow immoderately.

*Signs by
which the
Cholick is
known to be
occasioned
by Passions
or Colds.*

A Fit of the Cholick is known to proceed from *Taking Cold*, or from *Passions of the Mind*, when either of these Accidents are present, or immediately preceded the Paroxysm, in People of a weak and tender Constitution; of a Crude Lax Habit of Body; or who have had Hard Labours, great Floodings, and *Hæmorrhagies*: it generally seizes their Stomachs, and is sometimes felt a little lower; they vomit green or yellow matters, and there is a great Dejection of the Mind. This Cholick goes off in a Day or two, but returns upon any sudden Cold, Surprise, Sorrow or Passion; Walking or Exercise will occasion it, and a Jaundice sometimes ensues, which goes off of it self in a few Days.

*By the In-
sertion of
the Gall-
duct into
the Sto-
mach.*

The preternatural *Insertion of the Gall-duct into the Stomach*, may be guess'd at, by the frequent, habitual, and almost continual

tinual Irritations of the Stomach, and the Vomiting of Gall; and because they find Relief by Eating and Drinking, and are then subject to the greatest Irritations, Heart-burnings, and Vomiting, when the Stomach is empty.

The *Excrescence*, and *Inversion of the* By the In-
Cartilago Ensisformis upon the Stomach, is version of
 known by a fix'd Pain in the Pit of the the Cartila-
 Stomach, just where the Ribs part; by go Ensisfor-
 the Encrease of the Pain, when that Part mis.
 is prest by the Finger, and by frequent Vomiting.

Worms, Lice, and other Insects, may be By Worms
 guess'd at to be the Causes of the Cho- or other In-
 lick, from the Age and Constitution of sects.
 the Patient. Children are generally trou-
 bled with them 'till fifteen or thereabouts;
 grown up People of a moist Constitution
 are more subject to breed them than o-
 thers; and old People are more liable to
 them than those of a middle Age. The
 Paleness of the Face, greyish Colour of
 the Excrements, the Whiteness of the
 Urine, Loss of Appetite, Vomiting, fre-
 quent and almost continual small pricking
 Pains in the Guts or Stomach, more per-
 ceptible after long Fasting, denote them.
 But the only certain Sign is, when they
 vomit Worms, or, what is more frequent,
 void them by Stools.

That 'tis
Pestilential.

It is easily known when a Pestilential Disposition in the Air occasions the Cholick, by its being Epidemical; and its having the particular Symptoms observ'd to accompany it.

By what
Signs known
from the
Nephre-
tick Cho-
lick.

The Cholicks here treated of, are distinguish'd from the *Nephretick Cholick* (occasion'd by the Inflammation of the Kidneys, or by Stones or Gravel in them) by these Signs. In the *Nephretick* the Pain lies always fix'd and deep, on the right or left Side of the Small of the Back, or in both; it does not mount higher, nor advance towards the Middle of the Belly, but descends down in an oblique Line towards the Bladder, and is always extended to the Back: other Cholicks are felt more forwards, more in the middle of the Belly, and higher up than the Kidneys. In the *Nephretick* the Urine is generally clear at the first like Rock-Water, afterwards deeper Colour'd, hath a Sediment, and is loaded with Gravel or small Stones. In these Cholicks it is from the very beginning higher colour'd, thicker, and more muddy than Natural. The *Nephretick* commonly occasions a dull heavy Pain; other Cholicks a more intense, pricking, or hot Pain: And tho' sharp-pointed Stones in the Kidneys often occasion acute cutting Pains, they are easily distinguish'd by the fixt Situation of them in

in the Parts answerable to the Kidneys : most other Cholicks remove frequently from Place to Place ; the *Nephretick* is ever fixt, and often occasions a Numbness in the Thighs, and sometimes draws up the Testicles. In most other Cholicks Vomiting is more violent and frequent, the Body more bound, and the Patients find more Relief by Stools and Vomiting, than they do in the *Nephretick* ; in which the Swelling of the Belly, Grumbling of the Guts, and breaking of Wind seldom happen. The Taste of Urine in the Mouth is an undoubted Sign of the *Nephretick*.

C H A P. IV.

The Prognosticks of the Cholick.

CHolicks that are *Accidental*, and whose Causes are evident, are generally not dangerous.

The Dangers of Habitual Cholicks.

Habitual Cholicks are very difficult to be so entirely cur'd, that they shall not return again: For after their long Continuance, and repeated Paroxysms, which last for Days, Weeks or Months, the Humours often spread themselves into the Loins and other Muscles, or fall upon the Nerves; whereby they frequently end in Palsies or Epilepsies, often in Iliack Passions, Rheumatisms, Marasmes, or Extenuations of the whole Body; and sometimes in Gouts, or Dropsies. *Ille in Colon dolebat, superveniente Artbritide, melius habebat Hippoc. 4. in 6. Epid. 3. Quibus Intestina contorquentur circa Umbilicum, labores, & Lumborum dolor adest, qui neque medicamento purgante, neque alia ratione solvitur, in siccum Hydropem confirmatur. Hippoc. Sect. 4. Aphor. 11.*

of Wind Cholicks.

Cholicks proceeding from *Winds*, or that move from Place to Place; in which the Excrements are soft, and the Belly not obstinately bound, are seldom dangerous.

the CHOLICK.

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When the Pain of the Cholick is *fixt*, ^{Of fixt Cholicks.} the Constipation great, or the Belly seems as if it were hard ty'd with a Girdle, the Danger is greater.

When the Pain of the Cholick has no ^{of Cholical} Intermiſſion, is accompany'd with a great ^{Pains without Intermiſſion.} Heat, violent Constipation, Vomiting, Hickup, Raving, Syncope, Cold-sweats, and Coldness in the Extreame Parts, 'tis generally mortal. *Ex vebementi partium, que ad ventrem attinent, dolore Extremorum refrigeratio, mala.* Hippoc. Sect. 7. Aphor. 26.

Cholicks, which proceed from an ^{Of Cholicks} Excoriation, Ulcer, Gangrene, violent ^{from Uicers,} Inflammation, or Impostume in the Guts, or other ^{Inflammations, &c.} Parts, are for the most part mortal; and when to an Inflammation there is added a Suppression of Urine, the Danger becomes more eminent, and 'twill probably end in an Iliack Passion.

Cholicks from *inward Cancers* are always ^{Of Cholicks} mortal; their Cure is not to be attempt- ^{from Can-} ed, for thereby Death will be hasten'd. ^{cers.} *Quibus Canceri occulti oriuntur, eos non curare prestat; curati namque cito pereunt, non curati vero diutius per durant.* Hippocrat. Sect. vi. Aphor. 38.

Violent Cholicks that happen to *Wo-* ^{What Dan-} *men with Child*, especially if they are el- ^{ger when} derly, and to those who are much weak- ^{in Child-bearing and} en'd ^{weak wo-} ^{men.}

en'd by former Sicknesſes or great Loſs of Blood, are extreemly dangerous.

When Epidemical. Cholicks that are epidemically contagious, and proceed from a peſtilential Diſpoſition in the Air, are often mortal.

When from the Hardneſs and Retention of the Excrements. Cholicks proceeding from the *Hardneſs and Retention of the Excrements*, tho' not dangerous at the Beginning, become ſo by their long Continuance; whereby they occaſion Inflammations in the Guts.

When from Ruptures. A Cholick cauſ'd by *Ruptures*, generally ends in an Inflammation or Iliack Paſſion; from both of which there is much Danger.

When from Obſtructions and Tumours of the Glands of the Guts. Cholicks occaſion'd by *Obſtructions and Tumours of the Glands of the Guts*, are of long Continuance, and very difficult to cure; they often turn to Inflammations, which end in Impoſtumes and Suppurations. Moreover this ſchrophulous Diſpoſition frequently creates Obſtructions in the Glands of the Meſentery and the Lungs; whereby theſe Cholicks ſometimes end in Ptiſicks, or Dropſies.

When from pituitous, vitreous Matters. Cholicks proceeding from *Pituitous vitreous Matters* adhering to the Guts, are very obſtinate; and they are dangerous, or not ſo, according to the Violence of the Symptoms,

When from Worms. Cholicks occaſion'd by *Worms* are not dangerous when the Cauſe is known; becauſe eaſily cur'd by proper Remedies apply'd

ply'd in time; yet they are very dangerous, and often mortal, in this Respect, that this Cause is seldom thought of, in any but Children, and often over-look'd in them, 'till 'tis too late.

Cholicks arising from Indigestions, of *When from a sower Acid Nature, are not dangerous Acids.* if taken in time.

Cholicks occasion'd by *sharp and sower* *When from Humours discharg'd from the Blood upon sharp or the Guts, are very troublesome and obstinate, sower Humours discharg'd from the Blood, are least sudden and dangerous in Blood.* all Cases.

Cholicks occasion'd by *Corrosive Hu-* *When from mours discharg'd from the Blood upon the corrosive Guts, are very dangerous; because they Humours.* generally occasion Excoriations, and Ulcers.

Cholicks proceeding from the *Trans-* *When from lation of the Humours of the Gout, Scurvy, Rheumatism, venereal Distempers, &c. the Humours of the Gout, Scurvy &c.* upon the Guts or Stomach, are dangerous, or not so, according to the Violence or Remissness of their Symptoms, and their long or short Continuance.

Cholicks from the *Overflowing of the* *When from the Overflowing of the Gall.* *Gall,* are also dangerous, or not so, according to the Violence of their Symptoms, and from the danger of the Jaundice, which frequently succeeds.

The Prognosticks of

When from Atrabile. Cholicks from the *Atrabile*, or corrosive Gall, are very dangerous.

When from the imbibing of the Gall into the fleshy parts. Cholicks from the Gall's being imbib'd into the Coats of the Guts, Stomach, &c. are very obstinate and dangerous, as generally occasioning Fevers and Inflammations.

When from Passions or Colds. Cholicks occasion'd by *Passions* or *Colds*, are not dangerous; their Paroxysms are not of long Continuance; but their Returns are frequent.

When from Stones. Cholicks from *Stones* in any of the Bowels, do not portend immediate Danger; but are very obstinate, scarce possible to be remov'd, and often kill the Patient by a lingering Death.

Cholicks arising from the *Growing together* of Inward Parts of the Guts are incurable, and occasion speedy Death. This Case very seldom happens, tho' some Instances of it are attested by credible Authors.

When it affects different Parts of the Colon. When the Cholick affects the whole Extent of the Colon, 'tis more dangerous than when it affects only some part of it. 'Tis least dangerous when it affects only the Extremity of the Colon from the Navel downwards; because Clysters easily reach thither: More dangerous when seated in the middle of the Colon; which is that part of it, that runs across under the Stomach, and thence passing by the Spleen, marches over the left Kidney; and most

most dangerous when residing in the beginning of the Colon; which lies on the right Side, and by a winding Course extends it self to the Liver; because Clysters can scarce reach so high, when this Gut is fill'd with hard Excrements.

In fine, all Cholicks are more or less dangerous, according to the Remission and Intermiſſion, or the long Continuance and Violence, of the Symptoms, which are sometimes insupportable, and force poor Mortals to put an End to their Pains by violent Deaths; as *Galen* (a) and other Authors testify.

(a) *Galen. lib. 2. de compos. medic. cap. 1.*

C H A P.

C H A P. V.

The Cure of the Cholick.

S E C T. I.

Hippocrates and Galen both assure us, that it is an easie matter for him to Cure any Distemper, who thoroughly knows the Nature and Causes of it (a); with much more Reason may the same be affirm'd of modern Physicians, because they have the advantage of innumerable experienc'd Remedies deliver'd since by various Authors. Wherefore my chief Study and Care has been to establish the several Causes of the Cholick, and to remark by what Symptoms and Accidents each may be known and distinguish'd. What I deliver in this Chapter, shall be more the appropriating of approv'd Remedies to the proper Causes of this Distemper, than the writing of new Prescriptions, which I never affected.

In

(a) *Medicus sufficiens ad morbum cognoscendum, sufficiens est ad curandum. Hip. lib. de Arte. Promptissima fit curatio ab eo qui probè aegritudinem agnoverit. Galen. 12. met. cap. ult.*

In the Cure of the Cholick three things are chiefly to be aimed at. 1st, *To ease the present Pain.* 2^{dly}, *To Strengthen the Bowels.* 3^{dly}, *To remove the Cause.* The Pain may be eas'd by Bleeding, which empties the Vessels, and lessens or prevents Inflammations; by Anodins and Narcoticks; and by Clysters appropriated to dissolve the Hard Excrements, and to discharge and carry off the vitious Humours. The Bowels may be strengthen'd by spirituous and balsamick Ingredients mixt with Clysters and other Remedies, such as Disacordium, Turpentine, and Cordial Mixtures. And the Causes may be remov'd by several Methods which shall be hereafter deliver'd under each particular Head of the Cure.

Bleeding, tho' not so requisite in habitual Fits of this Distemper, is proper in the beginning of most Cholicks, to prevent Inflammations which are very frequent, and always to be fear'd in this Disease: but it is more particularly necessary in these three Cases. 1st, When there is a *violent Heat or Inflammation* in the Lower-belly. 2^{dly}, When a *Feaver* accompanies the Cholick. 3^{dly}, When there is a *great flux of humours upon any Part.* And Bleeding is to be repeated, according to the violence of the Symptoms, where ever the strength of the Patient will allow

low it. Of both which a Physician can be a competent Judge.

After once Bleeding, a Clyster is to be order'd, in some one of these or the like forms; and it may be of Service to make the Patient, after he has taken it, lie upon that side which is most Painful.

℞ Ol. Oliv. vel Amygdalar. dulc. calcfact. ℥x.

℞ Decoct. capit. Ovin. Ped. Vitulin. vel Intestinar. Nervic. ℥x. Ol. Oliv. ℥iij. misc. fiat Enema.

℞ Urin. San. ℔j. vel ℥xij. Therobinth. Vener. in Vitel. Ovor. No. 2. Solut. ℥j. Sacchar. culinar. ℥j. misc. fiat Enem.

℞ Decoct. Capit. Ovin. Urin. san. an. ℥v. Ol. Rut. vin. coct. an. ℥iij. Albumin. ovor. solut. No. 2. sal. commun. ℥j. misc. fiat Enem.

℞ Ol. Oliv. vel Lin. Vin. Malvatic. vel Canarin. an. ℥v. vel vj. misc. fiat Enem. celebrand. in causis frigidioribus sed non in Inflammatoriis.

When the Intention is, not only to evacuate by Stools, and to relax the violent Tension of the Guts, but also to corroborate

roborate and strengthen their Fibres at the same time, these following or the like Clysters will answer it.

R Absynth. roman. centaur. minor. an. m. j. flor. Chamam. baccar. Laur. an. ℥iij. coq. in jusc. Capit. Ovin. vel in Vin. malvatic. vel Canarin. q. s. adde Ol. Juniper. Ol. Thurebitrb. an. ℥ss. misc. fiat Enem.

R Vin. Malvatic. vel Canarin. calid. ℥ss. Vitel. ovor. dissolut. No. 2. Diascord. ℥ss. misc. fiat Enem.

This Clyster is prescrib'd but in half the usual quantity, because the Intention is to have it stay long within the Body, thereby to corroborate the Fibres of the Guts, and to afford them that Relief which Cordials give the Stomach.

If what Clysters are given do not answer, but stronger are requisite, then add to some one of the foremention'd, Decoct. fol. Sem. ℥ss. vel ℥j. or Infus. Croc. metallor. ℥iij. vel Tartar. Emetic. gr. viij. Some of which must, generally speaking, be given, when the Patient has retain'd two or three common Clysters: but Bleeding has the greatest Success in this Case; for daily Experience convinces us, that the same Clyster will operate well immediately after Bleeding,

Bleeding, when two or three given before were ineffectual.

Carminative Clysters are most commonly improper, for they create those Winds they are thought to expel; they disturb the Humours; stretch the Fibres of the Guts, and augment the Pain, as *Galen* well observes (b).

When the Heat is great, the Pain extreme violent, and accompanied with frequent Vomiting; *Narcoticks* are always to be mix'd with the Clysters; for 'tis matter of Fact, that when even gr. iv. vel v. *Laudan.* taken by the Mouth could not stop the Vomiting, the same quantity given in a Clyster has frequently done it effectually almost in an Instant. And tho' *Sydenham* seems fearful of giving *Narcoticks* till the Humours have been prepar'd, and part of them carry'd off by one or more Purges, that Rule does not hold in this Distemper, because it is a true Observation that Purges seldom or never operate in violent Pains; and an experienc'd matter of Fact, that when the violence of the Pain is allay'd by *Narcoticks*, the same Purge shall work kindly afterwards which before had no effect. Wherefore after

once

(b) *Carminativa majores dolores excitant. Galen. 14. Meth. cap. 7.*

once Bleeding, if necessary, and one Clyster, it will be generally proper to prescribe a Dose of *Laudanum* at Night, in one of these or the like forms.

Rx *Aq. Lact. Alexiter. Aq. Cerasor. nigror. an. ℥j. Aq. Cinnamon. fort. ℥ss. Syrup. de macon. ℥vj. vel ℥j. vel Laudan. Opiat. Londinens. dissolut. gr. j. vel iss. misc. fiat. Haust. hora decubit. sumend.*

Rx *Laudan. Opiat. Londinens. gr. j. vel iss. fiat. Pillula.*

or,

Rx *Laudan. Liquid. gut. xv, xx, vel xxiv. sumend. hora somni in vehiculo commodo.*

Tho' it is the Sentiment of many learned Authors, that *Narcoticks* fix the Humours, (which I am far from being convinc'd of) yet I am of Opinion that when given in excess they do sometimes translate, and throw them upon the Nerves, and thereby occasion *Palsies* to ensue on Cholicks; for which reason I think their use ought always to cease, as soon the Pain is well allay'd. But I would not have any one infer from what I say, that the danger of an ensuing *Palsie* is so great and certain, that the use of *Narcoticks* ought on that account to be omitted in the Cholick; for not only the violence of the Heat

or

or Pain, to both of which they afford the most certain and immediate Relief, but the Experience of Purges and Clysters working kindly after their use, when they did not before, do recommend them; and the Observations of the Antients shew their necessity in this Distemper (c). Next Morning repeat the Clyster, and give another that Evening, and a dose of *Laudanum* at Bed-time after its Operation. But it is very carefully to be observ'd, that when the Patient is extream weak, and in so sinking a Condition that you apprehend him to be near Death, *Narcotics* in that case are not only beneficial, but absolutely never to be given, for by stupifying the Spirits already languid and sinking, they hasten or bring on immediate Death.

The second or third Day it will be generally convenient to Purge. The Medicine must be gentle, for violent Purges occasion a greater flux of Humours upon the Guts, (the Part most frequently affected in this Distemper) as *Aetius*, *Paulus*, *Fonseca*, *Fuchsius*, and many others rightly observe.

Galen

(c) *Licet ego omnium ab usu graviter sapientiam abhorream, ea tamen in Colico vehementissimo, exhibeo. Cogente dolore stupefacientibus necessario Utor, doloris enim sedant, licet dispositiones non tollant. Gal. 2 ad Glauco. cap. 8.*

Galen uses only Lenitives in the beginning of this Distemper, and forbids strong Medecins (d). And for this End *Rhasis* (who has been followed in that Practice by many Moderns) mixes *Narcoticks* with *Purgatives*; which I think not so proper, as to give *Narcoticks* over Night, and a Purge the next Morning; my reason is, because *Narcoticks* mixt with Purges often hinder their Operation, and render them ineffectual. Of gentle Purges I take those to be most proper in the Cholick, that are given in a large quantity of Liquid, which both relaxes the Fibres of the Stomach and Guts, and by dissolving the Salts, lessens their Irritation. They may be order'd in any of these, or the like forms.

Rx *Tamarind. ping. ℥i℥s. coq. in f. q. aq. font. colatur. ℥i℥s. dissolv. pulp. Cass. recent. extract. Mann. calabrin. an. ℥j. col. & fiat porio dividend. in tres part. equal. quarum capiat unam horā. 6^a maturinā, aliam hor. 7^{ma} tertiam hor. 9^{na} interjecto juscūlo.*

or,

Rx *Man. ℥i℥s. Ol. Amygdal. dulc. ℥ij. capiat ex f. q. Juscul. vel Decoct. Tamarind.*

or,

Rx *Fol. Sen. ℥ij. vel iij. Rhabarb. ℥j. coq. in f. q. aq. font. colatur. ℥viiij. dissolv.*
K Syrup.

(d) *Qua valde calefaciunt potius excitant ventos, materias commovendo. Gal. xii. Meth.*

The Cure of

*Syrup. de Chicor. composit. & Cass. vel Man.
an. ℥j. misc. fiat Potio.*

But if the Stomach be so weak, it can't bear a Purge in a liquid Form, we must necessarily then give it in *Powders* or *Pills*, thus

*Rx Pulv. Cornachin. ℥j. vel 3ss. capiat
in vehicul. commodo.*

or,

*Rx Calomelan. gr. xv. vel ℥j. Resin. Jal-
lap gr. vj. capiat ex cochl. j. juscul. vel
alterius vehicul. commod.*

If *Powders* prove also offensive to the Stomach, they may be made up into *Bolus's* or *Pills*, with the *Conserve of Roses*, of *Burrage*, or of *Orange Pills*, which last generally makes them fit best upon weak Stomachs; or you may prescribe any of the following *Pills* according to the Strength and Disposition of the Patient.

Rx Pillul. Rudii 3ss. vel ℥ij.

or,

Rx Pillul. Coch. major. ℥ij. vel 3j.

or,

Rx Pillul. Coch. minor. 3ss. vel ℥ij.

The first of which Prescriptions is most recommended in this Distemper by *Willis*, the last most approv'd of by *Sydenham*.

But

But if even *Pills* themselves won't stay upon the Stomach, you must then give a dose of *Laudanum*, and the Purge eight or ten Hours after it; which (especially if in the form of *Pills*) generally succeeds well. You must always give a dose of *Laudanum* at Night after the Purge, to appease the Commotion it has rais'd in the Blood, and to prevent any discharge of Humours upon the Guts from its Effects. If the Patient be Sick at his Stomach, Vomit him with a large quantity of Luke-warm Pesset-Drink; or Fat Broth; or of Oyl and Water mixt. together: Violent or stronger Vomits are seldom proper, for the same reasons that we forbid strong Purges; and the more because they draw a greater discharge of Humours upon the Stomach and Small Guts, and thereby often turn the Cholick into a *Miserere* or *Iliack Passion*; Wherefore they are never to be given but in an extream Necessity, and manifest Indication for them; that is when the Cholick is occasion'd by an Excess in Diet or Surfeit, in which case even the strongest Vomits are to be given.

Fomentations of the Belly with hot Oyls, and several Decoctions, recommended by various Authors, are not to be apply'd without very great Caution: for they often put the Humours into Motion, augment the Heat and Inflammation, and yet

make no discharge; upon which accounts they are less us'd by the best Physicians of these Days, and caution'd against even by the Antients themselves. (e.) Not but that they are sometimes beneficial; to wit, when the Pain is almost insupportable, lies outwards, and is accompanied with a violent Tension of the Belly, a *Phlogosis* or Disposition to an Inflammation. In which cases after Bleeding, and Emollient Clysters; Emollient Fomentations, and sometimes Hot Oyls, either in Bladders, or having Flannels dipt in them, are apply'd with very good Success. The following are what I have in different Cases us'd with the best Success, and should most recommend.

Rx. Lac. Coct. q. s. quo semi-adimpleatur vesica, Abdomini applicand. & renovand. pro re nata.

Rx. Ol. Amygdal. dulc. vel Ol. Lin. Calefact. q. s. Method. supra prescript. regioni Abdominis applicand.

(e.) Calefacere Præcordia Cataplasmasibus; & perfusionibus non est perpetuo tutum, nisi in iis quibus purum est, cæteris omnibus est pernicies. Gal. lib. 11. Meth. Cap. 15. Cataplasmata & Perfusiones calida hujusmodi Affectibus Phlegmonas accersunt. Gal. 12. Meth. Cap. 8. Non oportet ut fiat instictio nec Imbrocatio cum Egretudo est in Principio &c. Avicenna Tractat. 2. Cap. 55.

or,
℞ *Capit. Papaver. Alb. (Concis. & cum Seminib. contus.) Semin Aneth. a ʒij. Herb. Malv. Hyosciam. Cynoglos. an. M. ij. Flor. Chamem. M. j. coq. in Aq. font. ℥vj. ad ℥iv. intingantur Stupb. Lan. fiat express. & deinde calidissim. applicentur Abdomin. renovand. pro re natâ.*

or,
℞ *Viscera ex Animalib. viv. extract. vel Coria Kervec. eo momento detract. quibus calidissimis involvatur Abdomen; renoventur identidem.*

Flannel, or a *Thin Woollen Cloth* worn next to the *Skin*, and covering all the *Belly*, is a lesser kind of perpetual *Fomentation*, recommended by *Galen* and others; and is sometimes useful in habitual *Cholicks*, especially in those that proceed from *Cold*, or *Weakness*, or from the defects of the *Caul*; but of no use in *Accidental Cholicks*, or to the cure of a *Paroxysm*.

Bathing, tho' very beneficial in the *Nephretick*, has seldom good Success in *Humoral Cholicks*; and *Willis* (f) observes that both *Bathing* and *Sweating*, are prejudicial in them; but that *Diureticks* are useful.

K 3

(f) Tho. Willis de Anim. Brutor. cap. 15.

I have but a very indifferent opinion of *Plaisters* in this Distemper; in which I can positively affirm, I never yet experienc'd the least benefit to have accrued to the Patient, by the use of any kind of them.

Mineral Waters, and particularly those of the *Barb in Sommersetshire*, drank hot upon the place for six Weeks or two Months, are of all things the most beneficial and successful in Habitual Cholicks.

Cucurbitula cum magna flammâ Umbilico imposita, recommended by *Galen* and many Authors, as what like a Charm eases the Pain in a moment, are not only diffus'd by the best modern Physicians; but may and do sometimes prove of very dangerous Consequence. For if the Skins of the Navel should thereby be excoriated, it is a most difficult matter ever to heal them. For which reason, the Excoriation of the Navel was a Punishment us'd by the *Ægyptians* to Criminals.

In the Cholick, the Patients Diet ought to be regular, and of things easy to Digest. No *Flesh* during the Fit, nor the Day following. *Green Fruits, Herbs, Beans, Pease, Cheese, Salt meats, Pyes, High Sauces, Pepper, Ginger, Hot Bread*, and all *Fish*, by reason of the Sauce abounding with Butter and Spices, are to be avoided; as also the too great use of *Sugar*, in which there

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is a Corrosive Acid. (g.) Their *Dinners* must be sparing, with gentle Exercise, (if they are able) before, and Quiet after them. Small, early, and very light *Suppers*. Let their *Sleep* be protracted longer than usual; and their Bodies kept open, so as to go by Nature or Art, once in 24 Hours, to Stool. They must be warn'd to avoid as much as possible all Passions of the Mind, as GRIEF, ANGER, &c.

All Sharp, Sow'r, and Stale Drinks; Green or New-Wines; Champaign, Syder, Perry, Brandy, and Spirits, are prejudicial in the Cholick. Neither is Wine it self proper, unless mixt with much Water; Martianus, Riverius, Hæferus, Akakia, and several other Authors, discommend its being drank alone, and assure us, that by the sole use of it, many have relaps'd into the Cholick immediately, and the Palsy thereby happen'd to others. But a small Draught of Sack or Malaga is allowable now and then by way of a Cordial. An Infusion

K 4

of

(g.) Acidum esse corrosivum in Saccharo constat, quia Succus ex quo Saccharum concrevit, extravasatus, intra breve tempus accescit. Et ex Saccharo distillare norunt Spiritum Lusitavi, quem Aquadenti vocant, summâ cum Stipticitate refrigerantem, linguam constringentem, & intestina torminibus torquentem, metalla corrodentem, Nitrosi Saporis, simul & acerbum. Saccharum etiam, ipsum quoque dissolvit Antimonium, si nempe cum eo distilletur triduanâ & levi destillatione. Pils.

The Cure of

of *Rhubarb* in cold Water, is an excellent Drink, in the Cholick, to which you may add a fourth or fifth part of Wine.

The eating of large quantities of Oyl, is proper and beneficial in almost all Cholicks, for it lubricates and relaxes the Fibres. But it must not be much us'd by those who are not well accustom'd to it, least it prove Offensive to their Stomachs, and spoil the Digestion.

The use of *Garlick* is good in the Cholick; every where ready at hand, cheap for the Poor, and is much recommended by *Galen* (h) and many Authors. It breaks the Wind without raising any great commotion in the Humours; it gently warms the Stomach and Guts, and is Diuretick. It may be boyl'd in Milk, Broth, or Beer; be swallow'd whole, or infus'd in White-Wine, or Water.

A *Moderate Regimen* and *Diet* is most advisable in the Cholick; all *very Hot things* generally speaking prejudicial, which for a little immediate Relief, they sometimes afford, encrease the Pain, and add new Fuel to the Disease.

In

(h) *Allium annuum plane Eduliorum flatus maxime discurit. Galen. Method. Medend. lib. 12.*

In habitual Cholicks nothing is preferable to *Riding*, so much recommended by *Sydenham*.

S E C T. II.

The Cure of the Cholick occasion'd by the Hardness and Retention of the Excrements.

IN this Cause the Curative Indications are to soften the Excrements and bring them away by Stools: Also to prevent Inflammations when they threaten. Wherefore an *Emollient Clyster* is immediately to be given after some one of these or the like Forms. And if an Inflammation arises, or is apprehended, *Bleeding* is to be order'd, and repeated according to its Violence.

℞ Decoct. Emollient. ℥ss. Ol. Oliv. ℥iij.
Pulp. Cass. recenter extract. ℥j. misc. fiat E-
nem.

Within twelve Hours after it give another thus,

℞ Ol.

The Cure of

*Rx Ol. Oliv. modico vulcano tepesact. 3x.
injiciatur pro Enemat.*

or,

*Rx Decoct. Intestinor. vel Capit. Ovin.
part. ij. Ol. Oliv. part. j. misc. fiat Enem.
ad ℥j.*

If neither of the two first Clysters should work, as it often happens in this Cause, give a third made as follows, which generally has the best effect of any.

Rx Urin. San. ℥j. injiciatur pro Enemat.

If a third Clyster should prove ineffectual, then Bleed the Patient, and immediately order a Purge to be taken the next Morning, without insisting any longer upon Clysters. It may be prescrib'd in the following, or what other Form the Physician shall judge most convenient.

*Rx Tamarindor. ʒiiss. coq. in s. q. Aq.
font. Colatur. ℥iiss. dissolv. Pulp. Cass. re-
center Extract. ʒij. Cremor. Tartar. solubil.
ʒj. misc. fiat potio dividend. in tres partes
æquales, quarum capiat unam singulis horis
successivis interjecto si videbitur Fuscule
temui.*

If these Remedies procure no considerable Relief, Bleed again, and order another Clyster thus.

Decoct.

R. Decoct. Intestinor. vel Capit. Ovin 3x.
Pulp. Cass. recenter Extract. 3ls. Catholic. pro
ore 3j. Sal. Tartar. 3j. misc. fiat Enema.

The next Day the Patient must be Purg'd, and a *Paragorick* given him that Night, if the Pain be violent, but not otherways. If upon the use of the Remedies the Symptoms are considerably abated, it will suffice to give *Diluting* things, such as *Sack Whbey* sweeten'd with *Syrup of Violets*, *Marsh-mallows*, &c.

The Patient is never to be *Vomited* in this Case, because that will probably turn the Cholick into an *Iliack Passion*.

Sanctorius (a) extols the following Method, by which he affirms that, of vast Numbers, he cur'd almost every one in the space of four and twenty Hours.

R. Ol. Amygdal. dulc. modicè calefact.
3x. fiat Enem. Statim injiciend. — Quod
post 12 hor. repetatur addendo Hier. Picr.
3ls. & eodem intervallo tertiâ vice repetetur. minor quantitas erit inefficax. & eo temporis spatio nihil præter oleum manducet.

I must do this great Man the justice to own, I have frequently met with that
speedy

(a) *Sanctorius Art. practic. cap. 44.*

sleepy Success he affirms of this Method, with these Alterations and Additions; that I generally *Bled* first, and sometimes, to wit when the Pain was extream violent, gave *Laudanum* at Night; tho' not so frequently, nor in such large Doses, in this as in Cholicks from most other Causes; and did not order my Patients Oyl for their only Food; which tho' it probably agreed well with those of the Country he practis'd in (who from their Infancy are accusom'd to Eat all their Fish dress'd in Oyl, and to have it mixt with most of their other Meats) does not when taken alone, or in any considerable quantity, agree with those of our Climate who are not habituated to it, but rises in their Stomachs and spoils their Appetite. And Use and Custom in Diet, are as much to be consider'd by Physicians, as the difference of Constitutions and Climates.

When the Fit is over, the Patient must use Remedies proper to keep his Body open, and to prevent a Constipation, such as *Chewing of Rhubarb or Cassia*, taking now and then *Laxative Clysters, Lenitive Eleſtuary*, &c. He must avoid a Seditary Life, and continual Riding, both of which dispose the Body to Costiveness.

S E C T.

S E C T. III.

*The Cure of the Cholick occasion'd
by Winds.*

THE Curative Indications in this Cause are, to divide and break asunder the Sulphureous Filaments, and ill digested Particles of the Aliments, which are rarefy'd into Winds; to expel those Winds out of the Stomach, and Guts; and to prevent Inflammations, which are very much to be apprehended from the violent Distention of the Guts, whereby a Compression in the Blood-vessels, and a Stoppage in the Circulation may be occasion'd; The Fermentation and Circulation of the whole Mass of the Blood is also to be quicken'd and enliven'd, least thro' its Coagulation, [the Degree of which is to be judg'd of, by the Degree of Concentration in the Pulse] a *Syncope* or *Suffocation* should ensue; wherefore some Blood is to be taken away where the Strength of the Patient can bear it, to prevent both the Inflammation and Suffocation; after which a *Purging Clyster* is to be order'd in this or the like Form.

*R. Decoct. Intestinor. vel Capit. Ovin ꝑx.
in quo dissolv. Diaphenic. ꝑj. Sal. Gem. vel
Sal.*

The Cure of

*Sal. Armon. ℥j. misc. fiat Enem. Salia
hec dividunt & atterunt materias qua cau-
sant ventos.*

Soon after the Operation of this Cly-
ster give the following Julep.

*℞ Aq. Card. benedict. ℥vj. pulver. Pi-
perin. ℥j. Sal. armoniac. gr. xv. Laudan.
opiat. dissolut. gr. j. Syrup. Aurantior. ℥ss.
misc. fiat Julap. reiterand. x^o. quâque horâ si
dolor perseverat Atrox.*

A second Clyster made as follows is to
be given ten Hours after the first.

*℞ Vin. Malvatic. vel Canarin. generos.
℥viij. Ol. Oliv. ℥iv. misc. & levi igne
calefact. injiciantur pro Enemat. Vinum
dissolvit materias in Intestinis contentas sine
elevatione Ventorum; & Oleum Sulphureis
suis particulis involvit Salia dissoluta, ut nec
fermentare, nec elevari in ventos possint. A-
liquando Enema ex vino puro vel urinâ sanâ
conveniet, quod posterius in urgenti casu ca-
teris omnibus est preferendum, in quantum
optime dividit materias indigestas.*

The second or third Day prescribe a
Purge, in which it will be very proper to
mix some Emetick Medecine, thereby to
disengage the Humours, [which are ge-
nerally

nerally in this Cause very viscous, glewy, and tenaceous] from their strict adherence to the Coats of the Stomach and Guts; and for the same Reason it will often be advisable to add a large Dose of Emetick to the third, fourth or fifth Clysters; nor need any one be apprehensive here of turning the Cholick thereby into an Hicack Passion.

Rx Fol. senn. ʒij. Rhabarb. incis. & sal. Tartar. an. ʒj. infund. calid. in s. q. aq. font. solatur. ʒvj. dissolv. man. ʒj. deinde misc. vin. Emetic. ʒj. fiat Potio sumend. mane.

If after this Purge, and the Emetick Clysters, the Pain should continue violent,

Rx Sal. vol. viper. vel. Cran. human. ʒj. capiat ex juscūlo vel alio vehiculo commodo, & repetatur pro re natā.

If after the use of these Remedies the Distemper should linger upon the Patient, Aperitive Medicines must be given; Steel is admirable in these Cases, but is not to be order'd in Substance nor in strong Doses.

Rx Absynth. roman. ʒss. semin. Coriand. Cardomom. an. ʒj. Rubigin. mart. [pulverisat. & nodul. linteo laxé inclus.] ʒj. vel ʒiiss.

The Cure of

℞ iſs. *Rhabarb. incif.* ʒj. *Cortic. Aurantior. condit.* ʒiij. *infund. calid. in aq. font.* ʒviiij. *colatur. miſc. Aq. Abſynth. compoſit. aq. Brion. compoſit. an.* ʒiij. *hujus capiat cochl. iv. bis in die per 15 dies, purgando in medio & ſine.*

When the Patient is cur'd of the *Paroxiſm*, it will be very proper, eſpecially if the *Diſtemper* be habitual, to ſend him to the *Bath* in *Sommerſeſhire*, with orders to drink the Waters hot from the Pump for ſix Weeks or two Months; thereby to cleanſe the Paſſages, ſtrengthen the Stomach, and deſtroy the fixt Acids of the Blood, which would otherways endanger a Relapſe. But if the Patient cannot conveniently go thither (for thoſe Waters are of little or no advantage, in this or any other caſe that I know of, when drank from the *Bath* itſelf) they may be ſupply'd by *Viper Broths* which divide and volatiliſe the fixt Salts of the Blood.

℞ *Carn. Viper. unius exentrat. (truncat. capite & caudâ,) contund. in mortar. marmor. deinde coq. lento igne in ſ. q. Aq. font. per 2 bor. vaſe vitreato & diligenter lutato; col. & fortiter exprime; capiat æger mane in Lecto, per modum Fuſcul. cooperiundo corpus per ij. vel iij. bor. & repetatur per x dies.*

Where

Where *Vipers* are not to be had, give *Cra-fish Broths* made according to the *Formula* deliver'd in the abovemention'd Book of *Vapours*, pag. 217. *edit.* 2. to be continued for x or xv Days.

Clysters in this Cause ought to be given in lesser Quantities than usual in other Cholics, because the Winds filling the Guts don't leave room for so much to be admitted, and often force back what is given.

Garlick so much recommended by *Galen*, as what breaks the Wind without raising any great Commotion in the Humours, is of good use here; and it helps to make a discharge by Urine. But I have never seen any good effects of *Cucurbitula cum magna flamma Umbilico applicata*, also much recommended in this Case by *Galen* and many of the Antients; but on the contrary am very apprehensive of ill Consequences from their Use; and it is certain they can never carry off the Cause, tho' they may possibly give Ease for a time.

Warm Cloths ty'd hard round the Belly afford some Relief, because by their Compression they hinder the violent Distention of the Guts, and slacken the painful Dilatations of the Muscles of the Abdomen. Add to this that by the new Sensation of Warmth they give to the Skins of the Belly, they make a sort of Diversion in the Course of the

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Spirits,

Spirits, and thereby give the Patient a little Ease for the while.

The drawing away of the Winds with an empty Syringe, mention'd by *Hippocrates* and some of the Antients, can hardly be of any advantage; for whilst the Cause remains, which it cannot remove, more Winds will arise; wherefore I should absolutely never advise it in Cholicks occasion'd by the Wind. Nor indeed have I ever order'd it my self in any case whatsoever; but am certainly inform'd that a celebrated Physician who died in *London* about six Years ago, being habitually troubled with a violent Cholick, found great Benefit by this *Pumping*; and having taken both Purging Clysters, Potions and Pills, was oblig'd to use frequently the *Empty Syringe*, before any Evacuation would ensue; and that he not only us'd it himself for many Years, but often prescrib'd it successfully to others. And it seems reasonable, that where the *Peristaltick* motion of the Guts is either deficient or weak, it may afford great relief by emptying the *Rectum* and part of the *Colon*.

S E C T.

S E C T. IV.

*The Cure of the Cholick occasion'd by
Crudities and Indigestions of an
Acid Nature.*

THE Indications in the Cure of Cholicks arising from this Cause are, to dissolve and attenuate the fix't Acids into lesser Particles; to evacuate and carry off the Indigested Aliments from the Stomach and Guts; and to prevent or remedy that Thickness and Coagulation of the Blood, which fixt Acid Humours produce. To which ends it will be sometimes proper to Bleed the Patient, to wit, when a *Syncope* or *Suffocation* (which often ensue from the Coagulation by the Blood) is apprehended, and the Physician finds by the Pulse that he is able to bear it. A *Clyster* may be also given, tho' not so absolutely necessary in this, as in Cholicks proceeding from most other Causes, but *Purges* ought always to us'd much sooner here. It will be generally convenient to give a *Vomit* at the beginning, and that of a little stronger Nature than in the foregoing Cause. Oyl and Tepid Water, or Fat-broth, may be first try'd; but if they are not sufficient to make a pretty good discharge, an Infusion of *Carduus Benedictus* or *Ipecacuan.*

gr. xii. must be given; and the following draught, one or two Hours after the *Vomit* has done working.

Rx Aquar. Borragin. Bugloss. an. ℥iij. Corall. rubr. ocul. Cancror. preparat. Cortic. Peruvian. pulverisat. an 3℥s. Sal. Armoniac. 3℥s. misc. fiat haustus, cui, (si dolor sit atrox) adde Laudan. opiat. dissolut. gr. j. vel gr. i℥s. miscentur hic volatilia cum fixis, ut presto sint tam quæ attenuent, quam quæ absorbeant diversa indolis & naturæ materias, & ut sanguis animetur; Pulsus enim hic est Concentratus.

Having thus prepar'd the Humours, they are to be purg'd off the next Day, to which end,

Rx Fol. senn. ℥iij. Rhabarb. 3j. Sal. Tartar. 3℥s. infund. calide in aq. font. q. s. Colatur. dissolv. Man. 3j. Jalap. gr. xv. vel Diagrid. gr. vj. misc. fiat Potio sumend. mane cum regimine.

We order stronger Purges here, because a greater discharge is requisite, and we give them sooner, because the Cause shewing itself at the beginning, (by the Belching and Vomiting, and sometimes by a Loosness) to lye in the Guts and Stomach, the speediest Method to effect the Cure will

will be to discharge those Matters, before they enter into, and affect the Blood; and there is little or no danger here of promoting thereby a discharge of Humours upon any Part; because the Cause is not furnish'd from the Blood, but resides in the Indigested Aliments contain'd in the *first ways*, consequently by *Purging* we both remedy the present Symptoms, and prevent their encrease; and as *Purges* evacuate both from the Stomach and all the Guts, they are preferable here to Clysters, which reach only to some part of the Latter. After the *Purge* repeat the former *Julep* that Night, and the next Morning, and continue its use twice in 24 Hours at proper times, for two or three Days; then give *Corric. Peruvian.* for five or six Days in the same manner as for an *Ague*, thereby to absorbe the fixt Acids, help the Digestion, and prevent the Returns of the Cholick. The Humours being of a fixt Nature, *Laudanum* is to be given more sparingly, and not so soon here, as in Cholicks from other Causes, unless the Pains are violent, in which Case it is always to be given immediately.

When the Indigestions are *Stercorous*, and accompanied with a Looseness to which is join'd a violent Pain in the Belly resembling a Cholick; the Cure is to be that of a *Diarrhaea*, only more *Laudanum* is to

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be given in Proportion to the Pain. These are all the Alterations in this Cause from the Cure of the Cholick in general. The Symptoms and Signs by which this Cause is distinguish'd from others are deliver'd *Pag. 103.* and its Progress *Pag. 119.*

S E C T. V.

The Cure of the Cholick occasion'd by the overflowing of the Gall; or, by Acrimonious and Corroding Juices.

TH E Indications of the Cure from these Causes are; *First*, To allay the violence of the Pain by *Anodine* and *Narcoticks*: *Secondly*, To prevent Inflammations by Bleeding, and other Remedies proper for that Purpose, mention'd in the first Section of the Cure. *Thirdly*, To correct the Acrimony and corrosive-Irritation of the Humours; either by dividing their Salts into lesser Particles, which *Attenuants* and *Dissolvents* will effect; or by sheathing their Points in *Alkaline* and *Absorbent* Remedies; either of which will lessen the Violence of their Action. *Fourthly*, To evacuate those Humours thus prepared. *Fifthly*, To correct and sweeten the Blood, when the Fit is over, thereby to prevent

the CHOLICK.

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prevent its return. To these Ends *Bleeding* is first to be order'd; and this, or the like Clyster some Hours after it.

R. Ser. Laet. ℥j. in quo dissolv. Pulp. Cass. recenter extract. ʒiiss. Sal. Prunel. ʒij. vel iij. misc. fiat Enem.

If the Patient be sick at his Stomach, (which in Cholicks from these Causes, generally proceeds from the overflowing of the Gall into it) Vomit him with Oyl and luke-warm Water; or with weak and fat Broth: But all stronger Vomits are carefully to be avoided, least you thereby turn the Course of the Humours upwards, and change the Cholick into an *Iliack Passon*: *Laudanum* must be given the first Night, or sooner if the Pains be violent. After which, especially if it be in hot Weather, make the Patient drink a great quantity of cold Spring Water. For as *Sylvius* observes, nothing corrects the Acrimony of the Gall like to the Spirit of Nitre; now in cold Spring Water there is much refin'd Nitre, which will answer that Indication; and the great quantity of Liquid will both dissolve the Acrimonious Salts of the Gall, or of the Corrosive Humours, Relax the Fibres, and cool the Parts. Nor ought this Practice to be slighted, because easie, and without any Pomp of Remedies,

dies, whose Properties are unknown to the Patient; for it has been often us'd with great Success, and is much Recommended by Galen (a.). Paulus Aegineta (b.) Forestus (c.) Amatus (d.) Septalius (e.) Fortis (f.) Zacutus, Riverius, Chirac, Barbeyrac, and

(a.) Galenus lib. 12. Meth. cap. 7.

(b.) Medicus quidem in Italia curavit Colicam vietus quâdam ratione infideli, refrigerante, & maxime temerariâ; Lactutas enim non coctas, refrigerantesque ipsis porrigebat. Intybumque similiter supra satietatem comedendum; item Uvas, Mala, Pisces durâ carne predictos, omniaque crustacea, Pedes Bubulos, Bulbos, & similia, non solum facultate sed & tactu frigida; vinum raro praebebat, cum autem dabat frigida miscebat, ipsamque frigidam, vel etiam Poscam frigidam exhibebat, ab omni calido & medio cibi abstinens; atque plurimos sic præter omnium opinionem sanavit; imo nonnullos qui in morbum Comitialem vel Resolutionem prolapsi erunt, propemodum sanitati restituit. Paulus Aegineta lib. 3. cap. 14.

Tho' this Practice is so much inveigh'd against by Aegineta, I take the Quotation to make for my Assertion; for the extraordinary Success that Physician is own'd to have met with by it, is a sufficient Recommendation of it; and the succeeding Experiences of many able Men convince us, that a cold Regimen is beneficial in Cholicks from this Cause. And tho' some of his Prescriptions, especially that of eating more than the Stomach craves for, may be rash; yet the Method in the main, of giving Cooling Things, as boyl'd Lettice, or Endive, roasted Apples, cold Water, and the Abstinence from Wine, is not only allowable, but of great Advantage.

(c.) In Colicâ Biliâsâ, frigidâ Aquâ usus sum in iis quorum vires robustas & partes principales illasas deprehendi: ac scio me levasse omnino dolores & totum morbum ne reverteretur prohibuisse. And. Dedi filio Falconis in Colicâ a causâ calidâ Aquam gelidam; insuper Lintheum Aquâ frigidâ

and many other great Men. Yet Note carefully, that this Practice is never to be made use of, but in Persons of a sound Habit of Body; nor even in those without the Advice of a judicious Physician: For it is no easie Matter to distinguish rightly when 'tis proper, and if us'd otherwise it may prove very Prejudicial.

To those who are apprehensive of, or unwilling to take cold Water alone, its Use may be supply'd by some one of the following Prescriptions.

℞ Decoct. Lactuc. vel Acetos. part. iij. Acet. part. j. misc. capiat. ℥iv. pro haust. repetend. pro re natâ. hoc magni fiebant a Medico magni nominis nunc vivente, qui asseruit illud maxime acrimoniam corrigere, & leniter evacuare. Insuper refrigerat. Sylvius tamen & nonnulli alii medici Acetum penitus prohibent in Colicâ.

℞ Aq.

frigida immersum & manu pressum Umbilico admoveri jussi; Diapapaver in Rotulis, & insuper Aquam Endrovia exhibui, quibus paucis intra triduum Sanus factus est, non sine multorum admiratione, & Artis medicina decore. Forestus lib. 21. ob. 12.

(d.) Mulieres duâ Colicâ a causâ calidâ laborantes, ex potu Aqua frigida incantamenti instar doloribus lavabantur, qua non amplius redibant. Amatus lib. 1. cent. 2.

(e.) Septalius lib. 7. Animad. practic. cent. medic. No 81.

(f.) Fortis consult. 93. cent. 2,

℞ *Aq. Acetos. Aq. Chicor. an. ℥vi.*
Syrup. Papaver. Alb. ℥iij. Spirit nitr. gut.
xl. misc. fiat mixtur. cochleatim. sumend.
ad libitum.

℞ *Aq. Acetos. Plantagin. Chicor. an. ℥ij.*
Syrup. Cortic. Aurantior. ℥j. Spirit. nitr.
gut. xij. Laudan. Opiat. Londinens. disso-
lut. gr. j. misc. fiat haust. borā ante decu-
bit. sumend.

The common Emulsions of cold Seeds are proper to be taken every Night in this Cause, adding to each Dose *Laudan. Opiat. Londinens. dissolut. gr. j. vel iss.* Also *Tartar. vitriolat. ℥ss. vel ℥j. or Spirit. Nitr. gut. viij. vel xij. in haust. Aq. Lactuc. vel Endiv.* which Spirit is the best Corrective of Acrimonious Humours, especially of the Gall, and almost a Specifick for it. Having thus prepar'd the Humours, they are to be evacuated by *Purges*; of which here follows several Formulas proper in this Case.

℞ *Decoct. Tamarindor. ℥ss. infund. calid.*
Senn. ℥ij. Tartar. solubil. ℥ss. Dissolv. Cass. re-
center extract. ℥j. Col. & fiat potio tribus
haustibus sumend. interjectā intra utrumque
bor. unā.

or,

℞ *Pulp. Tamarindor. ℥ij. Conserv. Ro-*
sar. pallid. ℥x. Elect. e succo Rosar. pallid.
℥j. Sal. tartar. vitriolat. ℥j. fiat conditura.
cujus capiat ad nuc. moscat. magnitud. vel
℥ss. pro re natā.

or,

or,
℞ Elect. Lenativ. q. s. capiat saepius in
parva dosi.

or,
℞ Cremor. Tartar. ℥ss. Lact. Coct. ℥iiss.
vel ℥ij. bulliant simul, & fiat Serum, Sac-
char. edulcorand. Cola, & capiat repetitis
haustibus intra hor. j. hoc optime dissolvit sa-
lia irritantia, Refrigerat, purgat leniter, &
Acrimoniam Bilis demulcet.

Hiera Picra is much recommended in
this Case by *Galen*, as a great Corrective
of the Acrimony of the Gall; and with
it he immediately begins the Cure: But
the succeeding Experience of many great
Physicians shews, that it is more proper
first to correct the Humours, and even
then not to give it in this Case alone, but
mixt with Purgatives of a more cooling
Nature. As,

℞ Pulp. Cass. recent extract. ℥j. Hier.
Pier. ℥iiss. misc. fiat Bolus horâ commodâ
sumend. superbibend. in operat. ser. lact. cum
Cremor. Tartar. fact. q. s.

After the Paroxysm is entirely cur'd, it
will be Necessary in those, to whom this
Cholick is habitual, to correct that Vice
of the Blood and Humours which occasi-
on'd it; to which end Diluting, Sweet-
ning,

ning, and gently Evacuating Remedies are to be prepar'd. As,

℞ *Radic. Acetos. Gramin. an. ʒj. fol. Acetos. Borragin. Lactuc. an. m. j. coq. in s. q. aq. font. cum dimidio Pull. & fiat Fuscum ad ʒviij. vel x. sumend. mane jejuno stomacho, & repetend per 9 dies. purgand. cum Cremor. Tartar. ʒss. in medio & fine.*

After the use of these *Broths*, let him drink a Pint of *Whey* every Morning for a Fortnight, and then enter into a Course of *Asses Milk*, to be continu'd for a Month or Six Weeks.

The Use of *Brandy, Spirits, strong Cordials*, and of all *Hot Things*, in general, is absolutely to be forbidden in most *Cholicks*, but in these to be avoided like *Poison*. For as *Galen (a.)* well observes, 'tis from a Preternatural Heat and Driness that the Distemper arises; whence 'tis plain, what augments the Heat will encrease the Disease. In another Place (*b.*) he tells us, that all *Hot Medicines* and *Hot Diet* aggravate this Evil. And notwithstanding the Experience

(a.) *Hac enim ex ventriculi caliditate ex siccitate, & amarâ bile in ipso congesta solet accidere.* Galen lib. 2. de loc. affect.

(b.) *A calidis tum cibis tum medicamentis irritantur, & ab omni calorifica victus ratione.* Galen. lib. 1, de loc. affect.

perience of all succeeding Ages confirms the Truth of this Assertion, yet there are found not only Patients who, to this Day, are fond of them, for the little present Relief they afford; but even some Physicians who injudiciously allow of them.

S E C T. VI.

The Cure of Cholick occasion'd by the Alteration of the Gall into what Physicians call Atrabile.

THE Indications for the Cure differ very little in this Cause from the Preceding, only that we are to Bleed oftner, when the Pulse will bear it, because Inflammations are more frequent and dangerous here. It is carefully to be noted, that whenever the Pulse is so much concentrated, that you can scarce perceive any Motion in it, then you are never to bleed upon any account whatsoever. For by Bleeding in such case you may occasion a *Syncope*, or perhaps immediate Death. And in all Cases, where 'tis judg'd absolutely necessary to bleed whilst the Pulse is low, the Physician ought to keep his Finger upon the Patient's Pulse all the time he is bleeding, and order the
Liga-

Ligature to be loos'd the moment the Pulse is low.

Laudanum must be often repeated, and given in larger Doses in this Cause. The Clysters for the most part ought to be compos'd of cooling Oyle and Milk. The eating of as much Oyl as will agree with the Patient's Stomach, Milk also for common Food, are very beneficial here. Asses Milk upon the declining of the Fit, and for a Month or six Weeks after, is of vast advantage, both to perfect the Cure, and to prevent the return of the Distemper. Jesuits Bark is also a good Remedy. For the rest, this Cholick, when 'tis obstinate, and does not yield to these Remedies, is to be treated like the *Cholera Morbus*.

S E C T. VII.

The Cure of the Cholick occasion'd by the Gall's penetrating, and insinuating itself into the Coats of the Guts, Stomach, and other Parts of the Lower Belly.

THE chief Indication in this Cause is to prevent Inflammations which are here very frequent and dangerous, wherefore Bleeding must be often repeated; and

as Remedies proper to the Cure of a *Bilious Cholick* have generally preceded, before the Physician has grounds to suspect, at least sufficient Proofs to conclude, the Existence of this Cause; no alteration from the Cure of Bilious Cholick is to be made, till by its not yielding to usual Remedies, and by the Presence of the Symptoms enumerated, pag. 107, this is suspected. Then the only Addition, in my Opinion to be made, is the use of gentle *Steel*. Strong Steel, or even the commonmost moderate Preparations of it, will heat too much.

R. Rubigin. Ferri (rore maiali vel succo pomor. acidulor. imbut.) pulverizat; Et nodul. linteo laxo inclus. ℥iij. Affund. Aq. font. fervent. ℥iv. stent. ad refriger. Et infund. per hor 24^{or} colatur. capiat ℥vj. vel viij. bis in die per viij. vel ix. dies.

I know the use of *Steel* is not a common Practice in Fits of the Cholick; I believe many will exclaim against it as an Innovation upon usual and establish'd Methods; and perchance some may oppose it, as rash, prejudicial and contrary to all Practice. It may be particularly objected against it, that it *Heats*, and therefore is of all things to be avoided in this Distemper, wherein hot Remedies are generally noxious, but more especially in this Cause.

To

To which I answer, that no one is more averse to heating Remedies in the Cholick than my self, that I know very well all the common Preparations of *Steel* have that effect, and are therefore improper during the Fits; but this Preparation of it is not heating, and my own Experience convinces me, that it has entirely cured several in eight or ten Days, who had ineffectually taken many other usual Remedies for Months and Years. It not only cur'd the Fits, but prevented their Return; and I doubt not, but that others who are pleased to try it will find the same Effects.

The Considerations which led me into this Practice were, that when this Cause is suspected or discover'd, the usual Method is, to order *Narcoticks*, *Anodins* and *Coolers* to allay the Pain and Heat, and to repeat *Purges*, thereby to Discharge the Humours from the Part affected. The first making no Discharge of the Humour from the Part, can only appease the Pain for a time, but never effect the Cure; and the latter can hardly reach it, so as to occasion a total Discharge, its obstinate continuance, and frequent returns for Years after repeated Purges, is a sufficient proof of that. Add that Purges constantly occasion a greater Separation of the Gall into the Guts, whereby 'tis probable, that
more

more of it will be imbib'd into those parts of them, into which it had penetrated before. Wherefore no Method seem'd so proper as such a one, which by gently Dividing and Attenuating its Particles, could cause it to be gradually remixt with the Blood. This *Steel* effects, and given in this manner (which for the most part rather Cools than Heats) it entirely answers the Indication, and has seldom, in my Practice, mist the Cure, without any Inconvenience.

S E C T. VII.

The Cure of the Cholick occasion'd by Sharp or Sow'r Humours discharg'd from the Blood upon the Guts, Stomach, or other Parts of the Lower Belly.

THE Indications here are, to allay the Pain; to carry off the present, and to prevent greater Discharges of the Humours. Bleeding is seldom necessary in this Cause, because the Humours being of an Acid Nature, don't greatly threaten Inflammations. Purges are not to be

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given at the beginning; as *Galen* (a) observes, because as they bring down a greater Discharge of Humours from the Blood upon the Guts, they would consequently encrease the Evil; nay, even the gentlest Clysters augment it: Wherefore the frequent use of *Laudanum*, and a thickening Diet, with Absorbent Juleps of *Corral*, *Crabs Eyes*, *Jesuits Bark*, &c. ought to be the only Med'cines for the three or four first Days. *Anodins* and *Narcoticks* alone, are the chief, and generally sufficient Remedies. Tho' what the Patient Vomits up should be Green, which is the worst Colour the Humours can have, stronger Vomits than luke warm Water and Oyl, or fat weak Broth, are never to be given in the Cholick arising from these Causes; for if, by a Vomit, you should procure a Discharge of ever so much greenish Humours to Day, the Stomach will be loaded with as much or more to morrow, separated there in greater quantity by the Action of the Vomit.

(a) Non ob Febrem purgamus Aegrum, sed ob humores facientes febrem, unde multo majorem oportet fieri a Purgantibus remediis utilitatem, quam sit quod ex caliditate ipsorum sequitur detrimentum. *Galen. lib. 1. Aphor. 4.* cui merito addi potest, quam ex secretionibus ab illis factis sequatur detrimentum.

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(b)

Gentle Purges are to be given about the fifth or sixth Day, that is, when the Pain and Irritation are well allay'd, but not before as *Galen* instructs us (a). The following Case in *Galen* (b) is worth Observation, and his Method Instructive.

Atalius, a Youth subject to the Cholick, was much purg'd by the Juice of *Scammony*, the third Day after it he takes Cold, and had many Stools with sharp Pains; the fourth Day the Pains in his Belly encreasing, he took a Clyster *ex ol. Rutac.* by which the Pains grew violent, and a great Looseness succeeded. This *Galen* took for an evident sign, that some Humours were discharg'd from the Blood upon the Parts of the Lower Belly, which he attributed to the use of *Scammony*, that had made a Defluxion chiefly upon those Guts which were weak before. He order'd his Patient *Alica* and *Pomegranate Seeds* boyl'd together in Spring Water, a Dissolution of *Sumach* for his Drink, Bread alone dipp'd in old rough Wine, and Astringent Fruits, as

M 2 Pears,

(a) Deinde cum minus eum a Colico cruciatum intellexi, viscosos humores purgandos judicavi. Et semel hominem purgare non sum ausus quod doloribus & Inedia duobus mensibus confectus esset, verum ex quibusdam intervallis moderatè id faciens, quindecim diebus hominem prorsus sanavi. *Galen. lib. 12. method. cap. 7.*

(b) *Galen. lib. 12. method. cap. 7.*

Pears, Quinces, &c. for his Diet, and in the end a Dose of *Theriac*. by which he cur'd him.

This Method, which is without any pomp of Medecines, consists in Cooling, Thickning, and gently Astringent Remedies. *Alice* is a Pulse made of a sort of Wheat, affording a cooling and thickning Nourishment, much used by *Galen* in Fevers and Inflammations, yet he adds *Pomegranate Seeds* to make it still more cooling. *Sumach* is both cooling and gently Astringent: All the Diet moderately Astringent. The *Theriac* given at last Comforting and Strengthening. Where you must note that there had been a great Evacuation made by the *Scammony*, before he gave even moderate Astringents; for tho' proper in this Case, they are never to be made use of, till after a sufficient Evacuation, and even then you must always begin with those that are most gentle, and augment them gradually.

SECT.

S E C T. IX.

*The Cure of the Cholick occasion'd
by Corrosive Humours discharg'd
from the Blood.*

THE Indications for the Cure in this Cause, are, 1st, To Mitigate the Violence of the Pain; 2dly, To Prevent Inflammations, Erosions and Ulcers; 3dly, To correct and carry off what Humours are already separated upon the Parts, and to prevent any farther discharge of them. Lastly, to remedy the Disorder in the Blood, and thereby prevent any return of the Fits.

The beginning of the Cure is to be entirely the same with that of the *Overflowing of the Gall* deliver'd in *Sect. 5*. Cooling Remedies, Anodins, Narcoticks, Sweetners and Incrassants, are some or all of them to be order'd, and often repeated. Upon the decline of the Fit, Mineral Waters, or a Milk Diet, after the Body is prepared for it, one of the two, are never to be omitted. As the gnawing Irritation of the Stomach is very troublesome, the Patient must be allow'd to eat often; but of Meats that are cooling, thickning, and of easie Digestion. All heating things,

whether Food or Medecines, must be carefully refrain'd from. (a)

The following Case is very remarkable, and no doubt many of the like Nature would be met with, if Dissections were more frequent. A very fat Man who had been afflicted with the Cholick four Years, and treated with all proper Remedies ineffectually, fell at last into a *Marasme*, or the Extenuation of his whole Body, and died. Being opened, all the Parts were found entire and sound, only he had no Gall-Bladder. Upon dissecting his Guts, the Surgeon's Fingers were perfectly excoriated, or flead, by the sharp corrosive Humour that was in them. 'Tis to be noted, that this Man had been long subject to a *Rheumatism*, which left him so soon as the Cholick seiz'd him; an evident sign, that the Humour of the *Rheumatism* was translated, and thrown upon the Guts, to cause the Cholick; so that it was properly a violent *Rheumatism of the Guts*. I was present my self at this Dissection in *Montpellier*, and receiv'd this Account

(a) *Vidi hominem a calidis tum cibis tum medicamentis, atque ab omni calorisficâ victus ratione irritari, rursus juvari a temperatis, insuper inedia ei noxam inferre; sensus doloris erat mordax, unde conjeci mordacem humorem ad affecti intestini tunicas defluxisse. Galen lib. 1. de loc. affect. cap. 4.*

Account of what had preceded it from the Deceased's Physicians.

S E C T. X.

The Cure of the Cholick occasion'd by the Translation of the Humours of the Gout, Scurvy, Rheumatism, Venereal Distempers, &c. upon the Guts, or other Parts of the Lower Belly.

THE Indications and Method of the Cure in these Cases, are in general much the same as in the Sections, V, VIII and IX. but when the Cholick evidently proceeds from a *Translation of the Goutish Humour* upon the Guts, or other Parts of the Lower Belly, you must endeavour to throw it out into the Extremities, treating the Patient like one actually seiz'd with a Fit of the Gout in his Stomach, only that strengthening and repelling Clysters are to be added, and chiefly insisted upon, when this Cholick is judged to reside in the Guts themselves.

If the Cholick proceeds from a *Rheumatic Humour* translated upon any Parts of

the Lower Belly, treat the Patient as you would do one in a *Rheumatism*, with small regard to the Cholick, except the ordering of Repelling Clysters to remove the Humour from the Guts, it being less dangerous in the Muscles.

When the Cholick arises from *Venerial* Causes, it can be cured only by *Mercurial Medecines*, all other Remedies will prove ineffectual. When it proceeds from the *Scurvy*, no Alteration from the Cure of the Cholick in general is requisite, except only giving *Antiscorbuticks* by Intervals.

SECT. XI.

The Cure of the Cholick occasion'd by Obstruction and Swelling of the Glands of the Guts.

THE Indications and Method for the Cure during the *Paroxysm*, are the same in this Cause, as deliver'd in the Cure of the Cholick in general, *Sect. 1.* When the *Paroxysm* is ended a *Steel Course* will be necessary, to remove those Obstructions, which may otherways end in Suppurations or Ulcers. Strong *Steel* is carefully to be avoided, for by *Heating* too much,

much, it would cause the Return of the Fit, and consequently interrupt the Continuance of the *Steel Course* before any considerable Advancement can be made towards the Removal of the Cause. It may also occasion an immediate Suppuration or Ulcer, which 'tis the chief Indication to prevent. Wherefore we must always in this Cause begin with extream weak Preparations of *Steel*, augment them by almost insensible degrees, and continue their moderate use for two or three Months; which may be done with very little trouble to the Patient, and without hindrance of Business. *Aperitive Mineral Waters* are excellent in this Case.

S E C T. XII.

The Cure of the Cholick occasioned by a thick viscous, white Matter, term'd Pituitous and Cold by the Antients.

THE chief Indications here are, to allay the violence of the Pain, which may be performed by the use of *Anodins* and *Narcoticks*; to disengage the Viscous Matter from its adherence to the Guts, and to evacuate it out of the Body, both which may

may be effected by Clysters, Purges, and other Remedies hereafter mention'd.

The two or three first Clysters must be made of Fat weak *Broth*, *Butter*, and *Oyls*, for nothing Incorporates its self with, and dissolves viscous glewy Humours, like greasie and oily Substances. To the following Clysters it will be proper to add some Oil of a more subtile penetrating Quality, such as *Ol. Sabin. Laurin. Rutac. vel Corn. Cerv. in quo Ruta fuerit Cocta*, to dissolve and attenuate the viscous Humours still more; for they adhere very Obstinate-ly, and require much Preparation to be disengag'd: Clysters compos'd with these latter Oils sometimes cure this Cholick immediately; but if they have not the desired Effect, add to some one of the former Prescriptions *Aq. Benedict. Ruland. ℥j. vel jj. or Vin. Emetic. ℥iv. or Injiciantur Enemat. Antimonial. a Riverio & Sennerto Proposit. quæ optime conveniunt in urgenti Casu. or R. Vin. Hippocrat. ℥j. injiciatur pro Enemat. sanavit. nonnullos in momento.*

Soon after the Operation of the Clysters, give these or the like Remedies inwardly, to prepare the Humours for Evacuation.

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℞ Ol. Amygdal. Dulc. recent. express.
 ℥iſs. vin. Canarin. opt. ℥ſs. Syrup. Papa-
 ver. Alb. ℥ij. miſc. fiat hauſtus. —
 Platerus.

or,

℞ Oxymel. Scillitic. mel. Roſac. an. ℥ij.
 Aq. Vit. Juniperin. vel Anifat. ℥j. miſc.
 intine, bujus capiat cochl. j. bis vel ter in
 die.

or,

℞ Aq. font. fervent. ℥iv. Ol. Oliv.
 ℥j. Piperis craſciuſcule trit. grana aliquot.
 ſtent in infuſione; bujus capiat cochl. iij. vel
 iv. quantum poteſt calide; Sedabitur dolor
 fere in momento. Riverius. (a.)

*In diuturno affectu bujus Colici, Decoctum
 Guayaci cum vino, intermiſſis Purgationibus,
 ſalici cum ſucceſſu uſurpavit Amatus.*

℞ Cicad. no iij. Piper. an. pulverifen-
 tur, & ſumantur ex vehiculo commodo. I
 have never uſ'd this, but the Authorities
 of Galen and Aetius, who recommend it,
 are very great; and we may certainly give
 Hotter Remedies in this, than in any other
 Cholicks. Galen cur'd himſelf in this
 Caſe cum Enemat. ex Ol. Rutac.

Zedoaria,

(a.) Laxarus Riverius Praxeos lib. x. cap.

The Cure of

Zedoaria, Tinctur. Crac. cum Spirit. Vin. extract. Vinum Absynth. vel Juniperin. Zinzib. condit. are Recommended by very great Men. After the Humours are well prepar'd give a *Purge* or two in these and the like Forms.

R. Hier. Picr. ʒij. Electuar. Lanetiv. q. s. misc. fiat bolus.

or,

R. Pulp. Cass. recent. extract. ʒss. specier. Hier. Picr. ʒj. vel ij. Ol. Amygdal. dulc. ʒj. misc. fiat Electuarium molle sumend. mane cum regimine, quod egregium est ad Pituita educationem nec sinit post ejus usum Aluum indurescere. Gaspar Hofmanus.

I am apt to think, that if ever *Cucurbitula cum magna flamma* can be of Use, 'tis in this Cause. For it seems reasonable and conform to the Experience of outward Matters, that as the Heat of Fire dissolves *Glem*, and thereby loosens it from its close and strict adherence to other Bodies; so this Heat may dissolve those viscous tenacious Humours, and thereby disengage them from their Adherence to the Guts, whereby the Pain may possibly be eas'd in a Moment, as *Galen* and others affirm. As I never have try'd it, I cannot answer for the Truth of the Fact, but only deliver thus my own Thoughts of it. As
Heat

Heat destroys the Spring and Elasticity of common Air, I will not deny but it may have the same Effect on the Winds contain'd within the Guts, which are an exalted Air arising from ill-digested Aliments, and consequently that *Cucurbitula cum magna flamma*, may here possibly give some Ease for a short time. But the Effect of that Heat ceasing, those Winds will soon recover the Strength of their former Elasticity, whereby the Pains will return, so that this Method can never produce an absolute Cure.

S E C T. XIII.

The Cure of the Cholick occasion'd by Inflammations.

THE chief Indications here are, to allay the Violence of the Pain; to prevent the continuance and encrease of, and lessen the present Inflammation; wherefore we must Bleed more frequently, and in larger quantities, Prescribe more and larger Doses of *Narcoticks* and *Anodine Clysters*; shun absolutely all heating things, and insist on cooling Medecins, as *Spirit. Nitr. Vitriol. Emuls. ex seminib. frigid. Ene-mat. ex Oleis maxime Lini. vitentur Ol.*
Cha-

Chamamel. Rutac. Laurin. Castor. &c. & exulenti penitus vel levissima purgationes durante Paroxysmi savitia.

Fernelius (a) describes a Pain seated in the *Peritoneum*, and *Membranes*, frequent in dry and hot Seasons of the Year, which he calls a *Bastard Cholick*, and has in my Opinion a great resemblance of a *Pleurisie*, being occasion'd by the Inflammation of the *Skins* and *Membranes* within the *Lower-Belly*. It is also taken notice of by *Hippocrates (b)*, and its Cure consists in *Bleeding*, as that of the *Pleurisie* and other *Inflammations* does.

(a) Non raro dolores Hypochondriorum, presertim in tempestatibus calidis & siccis, & habitu graciliori observantur, quos Illegittimos appellant, in Peritoneo & Membris sedem habentes. Fernelius.

(b) Quibus dolores Hypochondriorum Hepatis & partium circumstantium, hi si sanguis excernitur, sanantur, si non moriuntur, quia motus Inflammationis. Hippoc. in Coicis.

SECT.

S E C T. XIV.

*The Cure of the Cholick occasion'd by
Worms and other Insects.*

TH E Indications here, are, 1st, to allay the Violence of the Pain, to which end Bleeding may be order'd, but *Narcoricks* are the chief Remedy. 2^{dly}, to disengage those *Insects* from their Adherence to the Guts, to sicken, kill, and discharge them out of the Body. To which ends,

℞ *Semin. santonic. pulverisat. ʒiij. Æthiop. mineral. sine igne parat. ʒiss. Ol. Absynth. gut. x. misc. fiat pulvis, cujus capiat ʒss. ʒij. vel ʒj. secundum ætatem, mane & vespere per iij. vel iv. dies in pulpâ pom. coct. vel alio vehiculo commodo; & singulis noctibus Enema Dulce ex Lacte melle & saccharo, quibus alliceantur (dulcibus enim delectantur) ad infimam partem Coli, vel in Intestinum Rectum, & inde sequentibus diebus facilius per Purgantia medicamenta excernenter. Ad quem finem die 4^{to} vel 5^{to}.*

℞ *Calomelan. ʒj. Resin. Jalap. gr. iij. Conserv. Rosar. q. s. ol. Absynth. gut. j misc. fiat bolus sumend mane horâ 5^{ta} vel 6^{ta} superdormiendo. Eadem nocte celebretur Enema.*

℞ *Ol.*

R. Ol. Oliv. Urin. san. an. ℥x. vin. Emetick. turbid. ℥ij. misc. fiat. Enem.

This Clyster taken soon after the Purge (which, and the foregoing Remedies, generally make the Worms sick,* and draw them low down) smothers them in the Oil, and disengaging them from their adherence to the Guts by the violent Action of the Emetick, and brings them away by Stools.

Aloes is a very good Purge in this Case. Its bitterness kills the Worms, and it both corroborates and evacuates, as *Galen* and others observe (a). *Paracelsus* (b) says that *Hypericon* apply'd to the part opposite to that place where the Worms lie, will make them remove their situation, consequently would be of use when they adhere obstinately to any part of the Guts; but I will not answer for the Fact which I have never try'd. This Cause ought to be always carefully examin'd into, being more frequent even in adult Persons, than is commonly imagin'd, and many by the neglect of a Cure for it in time, have died Convulsive, or have been eaten thro' by Worms,

as

(a) *Galenus* in lib. *Simplic.* *Diascorides* lib. 3. cap. 23. *Mesue.* cap. 1. *Simplic.*

(b) *Paracelsus* lib. de *Lumbricis*.

as several Authors testify. (a). The following Cases are remarkable. Two Girls, one of Seven, the other Nine Years old, were seized with most violent Cholicks, and insupportable Pains in their Bellies, which no Clysters, Purges or Worm Medicines could appease. The eldest being Dead, was open'd, whereby *Worms* were discover'd, which had gnaw'd Holes quite thro' several Places of her Guts, especially thro' the *Colon*. The younger dying afterwards, and being likewise dissected, they found not only Holes eat quite thro' her Guts by the *Worms*, but that they had also gnaw'd themselves Nests in her very *Heart* and *Liver*. *Riverius* (b). Another Girl of 14 Years of Age was troubled with most violent Pains of the Cholick, accompanied with a Fever and *Syncope*. *Anodins*, *Carminative Clysters*, and *Purges* were prescrib'd, by all which she receiv'd no relief; at last a *Clyster* of Milk warm from the Cow was order'd, which brought away by Stool above seventy *Worms* so entangled
N and

(a) *Paulus Aegineta lib. 4. cap. 53. Zacutus Lusitanus. Vol. 1. pag. 361. & lib. de Prax. admirand. Observ. 39 & 40. Riverius, &c.*

(b) *Lazarus Riverius citatus a Bonet. in Anat. pract. lib. 3. Sect. 14. pag. 903.*

and twisted together, in a round Ball as big as a Man's Fift, that it was hardly possible to separate them; whereupon the Pains and other Symptoms immediately ceased, and she was perfectly cur'd. *Fabritius (a)*.

S E C T. XV.

The Cure of the Cholick occasioned by Stones in the Guts, Gall-bladder, or Stomach.

THE Indications for the Cure in this Cause are, 1st, To allay the Violence of the Pain, which *Narcoticks* answer. 2^{dly}, To prevent Inflammations by *Bleeding*. 3^{dly}, To bring away the *Stones* where practicable, which last is a very difficult Undertaking.

Stones in the Stomach are scarce possible to be discharg'd by any other means than by Vomits, and very seldom that way, tho' some Instances of it are related by Authors (b).

When

(a) *Fabritius Hildanus Cent. 1. observ. 11*

(b) *Idem Cent. 5. observ. 57.*

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When a *Stone* is suspected to lie in the Guts, and not to be adherent, great quantities of Oil swallowed, and given in Clysters, is the most likely method to bring it away, by lubricating the Parts, and making a slippery Passage for it. After that *Globul. Plumb.* may be swallowed, to drive it out of the Body, but not unless there are almost evident Signs of its being loose, for otherwise the Stone may fix the Bullet, and make a greater stoppage in the Guts.

When a *Stone* is judged to be in the Gall-bladder, the strongest Aperitives, Steel Medicines, and Mineral Steel Waters, in large quantities are to be taken, to endeavour the removal of it from thence into the Guts, which has been often effected by their use, and an entire Cure ensued. But if after what a judicious Physician shall account a competent tryal of them, this effect is not produced, nor any Symptoms appear of the Stones being remov'd lower (which if it happens, they ought to be continued, in hopes of its farther Descent, and Exclusion in the end) they are not to be insisted upon. For where the Stones are too large to be brought away, forcing Remedies will render the *Paroxisms* more frequent, if not continual, during their

use, and thereby aggravate the Evil.

SECT. XVI.

The Cure of Cholicks occasioned by Wounds, Imposthumes, Ulcers, Ruptures, Cancers; by the Adhesion, or Præternatural Position of Parts, by a Caries, by an Excrescence or Inversion of the Cartilago Ensisformis; or proceeding from Habitual Colds, or sudden Passions.

WHEN the Cholick is known to proceed from *Wounds, Imposthumes, Ulcers, or Ruptures*, we must first endeavour the Cure of those particular Ailments by proper Remedies; till that is effected, it will be in vain to hope for the entire removal of the Cholical Pains, which in these Cases are but Symptomatical.

When the Cholick proceeds from an *inward Cancer*, there is no Cure possible. Lenitives, Anodins and Narcoticks are the only Medecines of any use, and all the

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these can do is to render the Pains more supportable.

When the Cholick is occasion'd by the *Præternatural Position* of any of the inward Parts, by their *Adhesion* or *growing together*, or from *Callosities* in them; there is no entire Cure to be had, tho' the *Paroxysms* may often be remov'd by Remedies in *Sect. 1.*

When we have cause to believe that the Cholick arises from a *Caries* in some particular Bone (which 'tis almost impossible to be certain of till after Death) the only Remedy is to lay the Bone open.

When the Pains of the Cholick are judged to proceed from a *Bony Excrecence* or *Inversion of the Cartilago Eniformis*, (which is a Case mentioned by good Authors, but what I never met with, nor have read any Cure for) the only Remedy I can think of, would be to open the Skins, and to cut off the inverted part of that Cartilage, or its Excrecence; nor can I apprehend any ill Consequence from it, though it is what probably has never yet been put in Practice.

In Cholicks that are *Habitual* from every little *Cold* or sudden *Passion*, the weak Disposition of the Body and the

Blood is to be remedied by constant *Riding*, *Cold Baths*, *German Spaw Waters*, &c. As these Fits usually go off themselves in a few Hours, no Remedies are necessary to the Cure of the Paroxysms; or if any, Narcoticks alone generally effect it, which if they should not, you must then proceed to the Cure of the Cholick mention'd in Sect. 1.

SECT. XVII.

Remedies particularly recommended by various Authors.

I Have thought fit to annex the following Receipts to this Treatise, that Physicians having at hand a view of all sorts of Remedies recommended by our Predecessors in that Science, may chuse out of them what they shall judge best indicated in desperate Cases, where 'tis better to hazard a doubtful Remedy, than to let the Patient die without attempting his Recovery; according to these Axioms of Hippocrates and Galen. *Melius est anceps Remedium quam nullum.* (2) *Ubi moriendum prorsus est Aegro, alie-*

(2) Hippocrat. Sect. 1. Aphor. vi.

nissimum a ratione est a mitioribus inchoare remedijs. And ad morbos extremos, extrema ad unguem preclare facere (a).

Re. Urin. Pueri impuberis calid. ʒviij. misc. cum mell. desumat. q. s. fiat Haustus. In Doloribus Colicis, cæteris non conferentibus auxilijs, exhibui, omnes excretis flatibus infernæ & supernæ, ruptoque copiosè aluo superstites evasere. Zacutus Lusitanus in Praxi Admirandâ.

Re. Pudend. Tauri pulverisat. ʒj. vin. malvatic. q. s. misc. fiat haustus. mirificè juvat. — Zacutus.

Emplastrum e Nive parti dolenti applicavi, & gelidam Nivem cum Saccharo ad satietatem exhibui in Colico a Bile, cum siti ingenti & dolore, & statim se curatum exclamavit. Zacutus.

Re. Aloes optim. ʒj. Laudan. opiat. gr. ij. Dacrydii gr. vj. misc. fiant Pillule No vj. quarum capiat iv. horâ commodâ, & postea reliquas, si non remissior fuerit dolor. Dolores post horam sedant, & postea noxios humores evacuant. Riverius lib. x. Praxeos. cap. j.

N 4

Re. Mer-

(a) Galen. lib. 5. Method. Medend. cap. 15.

℞ *Mercur. dulc. a ʒj. ad ʒj. Ol. oliv. cochl. j. Sacchar. alb. q. s. misc. Certissimum est Remedium quod Alvum solvit & dolorem Colicum.* — Heurnius.

Accipe Testiculos Equorum post Castrationem, eos lava cum vino grosso, scinde in taleolas, exsicca lentè in Clibano, & pulveris.

℞ *hujus pulver. semin. Anis. pulverisat. an. ʒj. capiat mane per iij. vel iv. dies in haustulo vini vel Juris, jejunando per quatuor hor. Fonseca. Consult. 57.*

℞ *Ol. Saponis gut. vj. vel viij. umbilico cum gossypio impone. efficax.* — Senner-tus.

℞ *Juris Pisorum ʒviij. Aq. Card. benedict. ʒij. Ol. oliv. ʒiv. Sacchar. ʒss. misc. injiciatur pro Enemat. quavis hora recrudescente dolore Colico. Ex hujus repetitione miraculosè convaluit, sopito omni dolore, & vacuatâ Causâ, cæteris nil proficientibus.* — Rulandus.

℞ *Globul. Stercor. Ovin. No v. vel vj. macerentur in vino; cola, & capiat Ager. optimum.* — Rulandus.

Semin. Ameos pulverisat ʒj. in vin. exhibita, in urgenti dolore eum subito sistit, & secundâ exhibitione morbum plerumque aufert, admovendo simul Cataplasma ex Therebinth ʒiij.

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℥iij. Stupis exceptum, & sinapisatum cum Piperis & sang. Dracon. subtilissim. pulverisat. an. ℥j. Lazarus Riverius lib. x. Praxeos cap. j.

Accipe obturamentum ex Subere confectum, quod per plures Annos huic usui inservierat, & adeo est vino probè imbutum; igne combust. pulverisetur. ℞ Hujus Cineris ℥j. capiat ex vin. Alb. urgenti dolore. Remedium predicatur esse infallibile, quo quidam seipsum & multos curavit. — In Observat. Riverio communicat.

℞ Decoct. menth. virid. pota per tres dies. Dolorem colicum prorsus tollit. — Aetius lib. 9. cap. 31.

Castoreum ad ℥j. in tribus Aq. Mulsæ cyathis assidue potatum; omnium instar est. — Fuchsius.

℞ Spermat. Ceti non rancid. ℥ss. Ol. Amygdal. dulc. Vin. Malvatic. an. q. s. misc. fiat haustus. Sperma enim Ceti ratione pinguedinis suæ non tantum est Acidorum temperamentum, sed & partes demulcet, unde dolorum intermissio. — Crato, trium Imperatorum Archiater.

Ex Colicâ Epidemicâ Paralyticos factos Aquar. Acidular. usu feliciter curavit. Citesius.

℞ Ar.

℞ Argent. Rivo. ℥iij. ℥q. font. q. s. fuso
pondere faeces excernunt & Vermes enecant.
Unde subvenire poterit, ceteris nil conferen-
tibus, in Colicis a Globulis Vermium vel ab
Excrementis induratis.

Alauda usta, si edatur, ministrat Colicos ju-
vat. — Galen de Theriac.

℞ Cera liquefact. q. s. injiciatur pro E-
nema. — Sennertus lib. 3. practic. part.
2. Sect. 2.

Fumus Tabaci inflatus in Anum per mo-
dum Enemat. aliquos curavit, cum nil aliud
potuit. — Bartholinus cent. 4. Epist. 92.

℞ Pulver. Intestinal. Hepato vel Stercor.
Lupin. ℥j. capiat ex Vin. vel Juscul. —
Galen lib. 10. de simplic. medicament. Pau-
lus Aegineta lib. 7. Amatus Lusitanus,
Gesnerus, Petrus Pachequi, &c.

Afferit Galenus loco citato se non potuisse
non mirari quod Stercus Lupinum candi-
dum appensum Hirs, vinculo confecto ex
hant Ovis a Lupo laniata, aut ex carvina
pelle, evidenter aliquos juvasset.

Folle inflentur Intestina, ut discedant a
fecibus. Hippocrat. Trallianus, Hartman-
nus

Si Enema recipi nequeat, habe. fistulam
biforem septem digitis longam, ut foramine
uno Enema injicias, alio flatus erumpant.

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R. Ol. Amygdal. dulc. ℥iv. Kin. alb. Aq.
 Parietar. à q. l. misc. fiat Haustus; deinde de-
 vora glandem plumbæum argento vivo illitum.
 Convulsiit statim in summa desperatione. —
Inserti.

R. Pulver. spongiar. quæ inveniuntur in Ro-
 sis Sylvestribus ℥ss. sumat ex vino. —
Inserti.

Paretur Balneum ex Oleo.
 Admoveatur Abdomini Stercus Equinum
 vel vaccinum calidum.

Glomera Filorum in lixivio Cinerum cocta
 & expressa calidè admoveantur Ventri.

Item Cataplasma ex Parietar. Nasturt.
 & Cepis Coctis.

Oleum Myrrhe Umbilico instillat.

The following *Empirick* or *Quack Re-
 medies*, are mention'd here, that Patients
 being inform'd of their insignificancy,
 may not neglect timely Advice, and pro-
 per Medicines, in expectation of any be-
 nefit from them.

Girdles made of the Guts of a Wolf,
 or the same hung round the Neck.

The Navel String of a Child worn for a
 Charm.

Quick-silver hung in a Bottle round the
 Neck, so as to touch the Navel.

The Cure, &c.

A *Lead-stone* apply'd to the *Navel*, by which 'tis pretended by *Hartmannus* that *Cholical Pains* will immediately cease.

Another very expensive Cheat is *Water* made bitter by the Infusion of a *Stone* found within a *Porcupine*, and extoll'd by some as an infallible *Remedy*.

All these, and the like pretended *Charms*, are entirely useless.



The *Navel* string of a Child worn for a *Charm*.

Quick-silver hung in a Bottle round the *Navel*, is as to touch the *Navel*.

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